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PHYSICAL MAP
25
THE BRITISH ISLANDS

Book 11: *Miles et al.* to a doctor

THE SEA IS TINTED TO EXPRESS DEPTH

	0-25 FATHOMS		25-50 FATHOMS
	50-100 0'		OVER 100 0'
	LAND LESS THAN 400' ABOVE SEA		

Reference in Mountains in *Method*

Hybrids	set	type labels
1. <i>San Diego</i>	60/68	11. <i>Armadillo Spine</i>
2. <i>San Jo. Mtn</i>	67/71	12. <i>Dark Pop</i>
3. <i>San Jo. mtn</i>	67/71	13. <i>White Pop</i>
4. <i>San Jo. mtn</i>	36/62	14. <i>May 1911</i>
5. <i>San Jo. mtn</i>	36/62	15. <i>White Pop</i>
6. <i>San Jo. mtn</i>	36/62	16. <i>White Pop</i>
7. <i>San Jo. mtn</i>	36/62	17. <i>White Pop</i>
8. <i>San Jo. mtn</i>	36/62	18. <i>White Pop</i>
9. <i>San Jo. mtn</i>	36/62	19. <i>White Pop</i>
10. <i>San Jo. mtn</i>	36/62	20. <i>White Pop</i>
11. <i>San Jo. mtn</i>	36/62	21. <i>White Pop</i>
12. <i>San Jo. mtn</i>	36/62	22. <i>White Pop</i>
13. <i>San Jo. mtn</i>	36/62	23. <i>White Pop</i>
14. <i>San Jo. mtn</i>	36/62	24. <i>White Pop</i>
15. <i>San Jo. mtn</i>	36/62	25. <i>White Pop</i>
16. <i>San Jo. mtn</i>	36/62	26. <i>White Pop</i>
17. <i>San Jo. mtn</i>	36/62	27. <i>White Pop</i>
18. <i>San Jo. mtn</i>	36/62	28. <i>White Pop</i>
19. <i>San Jo. mtn</i>	36/62	29. <i>White Pop</i>
20. <i>San Jo. mtn</i>	36/62	30. <i>White Pop</i>
21. <i>San Jo. mtn</i>	36/62	31. <i>White Pop</i>
22. <i>San Jo. mtn</i>	36/62	32. <i>White Pop</i>
23. <i>San Jo. mtn</i>	36/62	33. <i>White Pop</i>
24. <i>San Jo. mtn</i>	36/62	34. <i>White Pop</i>
25. <i>San Jo. mtn</i>	36/62	35. <i>White Pop</i>
26. <i>San Jo. mtn</i>	36/62	36. <i>White Pop</i>
27. <i>San Jo. mtn</i>	36/62	37. <i>White Pop</i>
28. <i>San Jo. mtn</i>	36/62	38. <i>White Pop</i>
29. <i>San Jo. mtn</i>	36/62	39. <i>White Pop</i>
30. <i>San Jo. mtn</i>	36/62	40. <i>White Pop</i>
31. <i>San Jo. mtn</i>	36/62	41. <i>White Pop</i>
32. <i>San Jo. mtn</i>	36/62	42. <i>White Pop</i>
33. <i>San Jo. mtn</i>	36/62	43. <i>White Pop</i>
34. <i>San Jo. mtn</i>	36/62	44. <i>White Pop</i>
35. <i>San Jo. mtn</i>	36/62	45. <i>White Pop</i>
36. <i>San Jo. mtn</i>	36/62	46. <i>White Pop</i>
37. <i>San Jo. mtn</i>	36/62	47. <i>White Pop</i>
38. <i>San Jo. mtn</i>	36/62	48. <i>White Pop</i>
39. <i>San Jo. mtn</i>	36/62	49. <i>White Pop</i>
40. <i>San Jo. mtn</i>	36/62	50. <i>White Pop</i>
41. <i>San Jo. mtn</i>	36/62	51. <i>White Pop</i>
42. <i>San Jo. mtn</i>	36/62	52. <i>White Pop</i>
43. <i>San Jo. mtn</i>	36/62	53. <i>White Pop</i>
44. <i>San Jo. mtn</i>	36/62	54. <i>White Pop</i>
45. <i>San Jo. mtn</i>	36/62	55. <i>White Pop</i>
46. <i>San Jo. mtn</i>	36/62	56. <i>White Pop</i>
47. <i>San Jo. mtn</i>	36/62	57. <i>White Pop</i>
48. <i>San Jo. mtn</i>	36/62	58. <i>White Pop</i>
49. <i>San Jo. mtn</i>	36/62	59. <i>White Pop</i>
50. <i>San Jo. mtn</i>	36/62	60. <i>White Pop</i>
51. <i>San Jo. mtn</i>	36/62	61. <i>White Pop</i>
52. <i>San Jo. mtn</i>	36/62	62. <i>White Pop</i>
53. <i>San Jo. mtn</i>	36/62	63. <i>White Pop</i>
54. <i>San Jo. mtn</i>	36/62	64. <i>White Pop</i>
55. <i>San Jo. mtn</i>	36/62	65. <i>White Pop</i>
56. <i>San Jo. mtn</i>	36/62	66. <i>White Pop</i>
57. <i>San Jo. mtn</i>	36/62	67. <i>White Pop</i>
58. <i>San Jo. mtn</i>	36/62	68. <i>White Pop</i>
59. <i>San Jo. mtn</i>	36/62	69. <i>White Pop</i>
60. <i>San Jo. mtn</i>	36/62	70. <i>White Pop</i>
61. <i>San Jo. mtn</i>	36/62	71. <i>White Pop</i>
62. <i>San Jo. mtn</i>	36/62	72. <i>White Pop</i>
63. <i>San Jo. mtn</i>	36/62	73. <i>White Pop</i>
64. <i>San Jo. mtn</i>	36/62	74. <i>White Pop</i>
65. <i>San Jo. mtn</i>	36/62	75. <i>White Pop</i>
66. <i>San Jo. mtn</i>	36/62	76. <i>White Pop</i>
67. <i>San Jo. mtn</i>	36/62	77. <i>White Pop</i>
68. <i>San Jo. mtn</i>	36/62	78. <i>White Pop</i>
69. <i>San Jo. mtn</i>	36/62	79. <i>White Pop</i>
70. <i>San Jo. mtn</i>	36/62	80. <i>White Pop</i>
71. <i>San Jo. mtn</i>	36/62	81. <i>White Pop</i>
72. <i>San Jo. mtn</i>	36/62	82. <i>White Pop</i>
73. <i>San Jo. mtn</i>	36/62	83. <i>White Pop</i>
74. <i>San Jo. mtn</i>	36/62	84. <i>White Pop</i>
75. <i>San Jo. mtn</i>	36/62	85. <i>White Pop</i>
76. <i>San Jo. mtn</i>	36/62	86. <i>White Pop</i>
77. <i>San Jo. mtn</i>	36/62	87. <i>White Pop</i>
78. <i>San Jo. mtn</i>	36/62	88. <i>White Pop</i>
79. <i>San Jo. mtn</i>	36/62	89. <i>White Pop</i>
80. <i>San Jo. mtn</i>	36/62	90. <i>White Pop</i>
81. <i>San Jo. mtn</i>	36/62	91. <i>White Pop</i>
82. <i>San Jo. mtn</i>	36/62	92. <i>White Pop</i>
83. <i>San Jo. mtn</i>	36/62	93. <i>White Pop</i>

Islands

3	Blackhead	1760
10	Black	1990
20	Whitish Hills	3710
40	Black Hills	3410
41	Page Lake	2870
42	Black Hills	2860

References to Mountains in England

1. <i>Isos. Pili</i>	5.50	20. <i>Isos. Gili</i>	
2. <i>Melospiza</i>	1.50	21. <i>Melospiza</i>	
3. <i>Thalassidroma</i>	2.00	22. <i>Isos. Gili</i>	
4. <i>Chondestes</i> (Old World)	2.00	23. <i>Isos. Gili</i>	
5. <i>Chondestes</i>	2.00	24. <i>Isos. Gili</i>	
6. <i>Isos. Gili</i>	1.00	25. <i>Isos. Gili</i>	
7. <i>Thalassidroma</i>	2.00	26. <i>Isos. Gili</i>	
8. <i>Thalassidroma</i>	2.00	27. <i>Isos. Gili</i>	
9. <i>Isos. Gili</i>	2.00	28. <i>Isos. Gili</i>	
10. <i>Isos. Gili</i>	2.00	29. <i>Isos. Gili</i>	
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19. <i>Isos. Gili</i>	2.00	38. <i>Isos. Gili</i>	

Noughtness as Well

1	Prochilus	
2	Prochilus	1
3	Prochilus	1
4	Prochilus	1
5	Prochilus	1
6	Prochilus	1
7	Prochilus	1
8	Prochilus	1

Reference to *M. autumnalis* on Ireland

	Year	1960
1 <i>Artemisia</i>	24.0	20
2 <i>Scirpus</i>	22.0	20
3 <i>Scirpus</i>	20.0	20
4 <i>Scirpus</i>	20.0	20
5 <i>Scirpus</i>	20.0	20
6 <i>Scirpus</i>	20.0	20
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12 <i>Scirpus</i>	20.0	20
13 <i>Scirpus</i>	20.0	20
14 <i>Scirpus</i>	20.0	20
15 <i>Scirpus</i>	20.0	20
16 <i>Scirpus</i>	20.0	20
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81 <i>Scirpus</i>	20.0	20
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96 <i>Scirpus</i>	20.0	20
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98 <i>Scirpus</i>	20.0	20
99 <i>Scirpus</i>	20.0	20

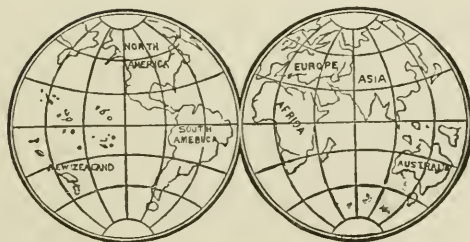
THE
EARTH AND ITS INHABITANTS.

EUROPE.

BY
ÉLISÉE RECLUS.

EDITED BY
E. G. RAVENSTEIN, F.R.G.S., F.S.S., ETC.

VOL. IV.
THE BRITISH ISLES.



ILLUSTRATED BY NUMEROUS ENGRAVINGS AND MAPS.

NEW YORK:
D. APPLETON AND COMPANY,
1, 3, AND 5 BOND STREET.



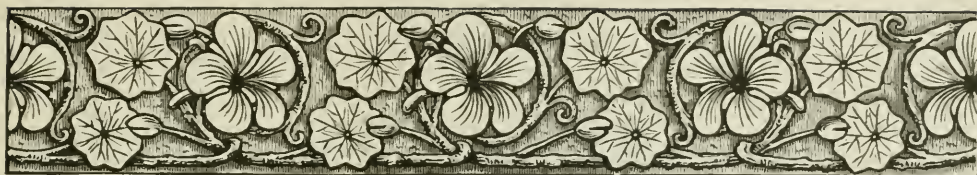
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NOTE.—On a comparison of this volume with the corresponding French one, it will be found that not only have ninety additional illustrations been inserted in the text, and four coloured maps added, but that the text itself has been expanded to the extent of nearly one hundred pages. It was thought that a work intended for English readers should furnish information on the British Isles somewhat more full than that given for the countries of Continental Europe. The Editor, in making these additions, has taken care to preserve the character of M. Reclus's original work. He has occasionally enlarged upon matters only slightly touched upon by the French author, and expanded more especially the topographical portion of the work, but he has carefully abstained from intruding his own opinions when these were not quite in accord with the views held by the Author.—E. G. R.



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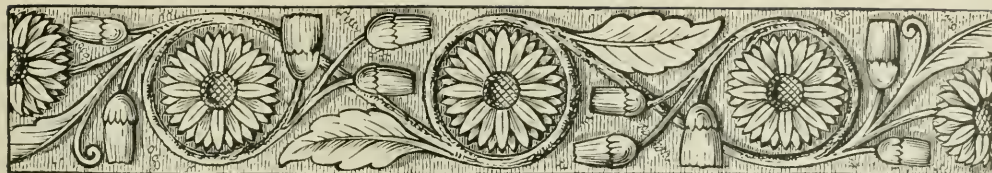
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A UNIVERSAL GEOGRAPHY.

THE BRITISH ISLES.

CHAPTER I.

GENERAL FEATURES.



REAT BRITAIN and Ireland, together with the numerous small contiguous islands, form but an insignificant fraction of that world upon which they have exercised so considerable an influence. In area they do not form the thirtieth part of Europe, or the four hundred and thirtieth of the habitable globe, whilst their truly fruitful portion, which has enabled England to play her great part in the world's history, constitutes scarcely more than one-half of the United Kingdom.*

Great Britain, the larger of the two main islands of the group, is separated from Continental Europe by the English Channel and the North Sea, and is itself divided into several well-marked geographical regions. Ranges of hills, and even mountains, no less than the elongated shape of the island, were favourable to the formation of distinct communities, whose conflicting interests, as might have been expected, were frequently decided by an appeal to arms. South-eastern England, a country of plains and hills, is one of these natural regions, and for ages its inhabitants differed from their neighbours in history and manners. The peninsula of Cornwall, between the English and Bristol Channels, which juts out into the open Atlantic, no less than the mountain land of Wales, bounded on the south and north

	Area.	Population (Estimated for 1880).
* Great Britain	84,447	28,630,000
931 Minor contiguous Islands	4,614	300,000
Isle of Man	227	56,000
Ireland	32,285	5,370,000
196 Minor contiguous Islands	246	5,000
Total British Islands	<u>121,819</u>	<u>34,361,000</u>

by well-defined indentations of the coast, are likewise countries distinguished by special features which could not fail of exercising an influence upon their inhabitants. The mountainous part of England, to the north of the Humber and Mersey, forms a fourth natural province, differing from the remainder of England in its geological structure no less than in the history of its inhabitants. The Cheviot Hills, which run across the island from sea to sea to the north of the Solway Firth, form a well-defined historical boundary, and so does the lowland plain which stretches from the Firth of Forth to the Firth of Clyde. The sterile mountains and valleys of the Scottish Highlands form a most striking contrast to the low plains and gentle hills stretching away to the south.* At two places these natural frontiers have been marked, as it were, by lines of fortifications, viz. between the estuary of the Forth and that of the Clyde, and farther south, between the mouth of the Tyne and the Solway Firth, where the Romans constructed ramparts and towers to put a stop to the depredations of the Highland tribes.

The contours of Great Britain are at once symmetrical and bold. In its general structure that island strikingly resembles the peninsula of Scandinavia. Like the latter, it stretches from north to south in the direction of the meridians, its plateaux and mountains rise near the west coast, and its principal rivers flow to the eastward. Ireland, though it too has fine contours, is far more massive in its configuration than the sister island. Its mountains form the nuclei of distinct provinces, whose inhabitants made war upon each other; but on the whole its features exhibit greater geographical unity than those of the larger island.

The British Islands rise upon the submarine plateau of North-western Europe. The strait which separates England from France is narrow and of inconsiderable depth, and from the heights above Dover the grey cliffs of Gris Nez are distinctly visible on a clear day. Still, Albion, to the ancestors of the modern Frenchmen, was a distant country. Squalls of wind, rapid and changing currents, sand-banks, and steep cliffs rendered navigation perilous. In time of war communications between the two countries ceased altogether; whilst during peace, owing to the danger which attended them, hardly any but sailors and merchants profited by them. The mass of the nation was thus little affected by events which took place on the continent, and remained insular in its mode of life, customs, and ideas. The Romans, moreover, only succeeded in subduing a portion of Great Britain, and the influence they exercised was therefore far less powerful than in Gaul. The highlands of Scotland and Ireland never formed part of the Roman world at all, the remoteness and the perils of the ocean affording them a protection against the legions of the Cæsars. It was only slowly and by degrees that the tribes inhabiting those countries were affected by the civilisation which had Rome for its centre. The British Islands thus occupied a position, relatively to the general history of mankind, analogous to that which they hold to the fauna and flora of Continental Europe. Numerous species of French and German plants, perfectly adapted to the climate of England, are nevertheless not found there, and Ireland is still poorer than Great Britain in its animal and vegetable forms. The migration

* Buckle, "History of Civilization in England."

of numerous species has been prevented by the obstacles presented by the sea, and in the same way many great events in the history of Europe affected England but slightly, and were hardly felt at all in distant Erin.

The progressive development of England was thus marked by originality and spontaneity. The country which gave birth to this national civilisation possesses, moreover, very considerable physical advantages. Its hills and mountains are of moderate height, and present no serious obstacles to free communications between the inhabitants dwelling on opposite slopes; for the Grampians lie outside the living portion of the country, in a region of sea-born winds and mists, and are, besides, very thinly inhabited. The lowlands, privileged in every respect, occupy the other extremity of the island, and face Continental Europe. Washed and defended by the sea on the east and the south, this portion of England hospitably opened its ports to colonists and merchants. It was there, in the vicinity of France and the Netherlands, that civilisation made most rapid progress, and the capital of the entire country was established.

THE BRITISH SEAS.

To the seas which surround them the British Islands are indebted for the mildness of their climate, their security from foreign invasion, their commerce, and the wealth yielded by productive fisheries. These seas are shallow. If the waters were to subside to the extent of 300 feet, the whole of the British Islands, including Ireland, would once more be united to Continental Europe. A subsidence of little more than 100 feet would result in the formation of an isthmus connecting Lincolnshire with Holland. A line drawn on a map to mark a depth of 600 feet passes about 50 miles to the west of Ireland, the Outer Hebrides, and Shetland. All within that line is less considerable in depth, excepting only a few "pits"—depressions in the bed of the sea—which lie off the west coast of Scotland and in the North Channel.

The North Sea, or German Ocean, to the south of the parallel of Aberdeen, hardly anywhere exceeds a depth of 300 feet, and it grows shallower towards the south. It is exceedingly rich in fish, and Möbius* very justly remarks that its bed is far more profitable to man than are the sterile heaths which border its shores. Its fisheries give employment to about 900 fishing-smacks, of which 650 sail under the English flag, and the harvest of fish annually drawn from its depths has been estimated at 75,000 tons. One of its most productive fishing grounds is the Dogger Bank, which occupies its centre, and supplies London and other large towns with immense quantities of cod. The North Sea is indebted for its wealth in fish to its shallowness and freedom from rocks. Oyster beds are the only obstacles which the dredge of the fisherman occasionally encounters. These oysters of the high sea, however, are but little esteemed. The best oysters are found in the shallow, brackish waters along the English coast, and it is these which are deposited in the oyster parks of Ostend to be fattened.

* "Das Thierleben am Boden der Ost- und Nordsee."

In its general features the bed of the North Sea resembles the mud-flats, or *wadden*, of its eastern shore. Oceanic currents have scooped out channels in the mud and sand, but the original relief of the sea-bed has been obliterated. A submarine plain like this can be the product only of causes acting uniformly

Fig. 1.—THE NORTH SEA.

Scale 1 : 7,400,000.



over a wide area; and for such a cause the majority of geologists go back to the glacial epoch, when glaciers, laden with the waste of the land, drifted into this ancient gulf of the Atlantic, and there deposited their loads.* Even at the present day there are agencies at work which tend to fill up the basin of the North Sea.

* Ramsay, "Physical Geology and Geography of Great Britain."

Glaciers are no longer stranded on its shores, but rivers deposit in it the sediment with which they are charged, whilst the arctic current, which makes itself feebly felt in this vast gulf, conveys into it the pumice-stone ejected from the volcanoes of Iceland and Jan Mayen.* Deposition is consequently still going on, though at a much slower rate than formerly. But how are we to explain the gradual filling up of the North Sea, whilst the abyssal channel which separates it from Norway

Fig. 2.—THE STRAIT OF DOVER AND THE ENGLISH CHANNEL.

From an Admiralty Chart. Scale 1 : 795,000.



retains its depth of hundreds of fathoms? Is it not that its very depth saved it from becoming the depository of glacial drift? The glaciers carried southward by currents and northerly winds may be supposed to have stranded only after they had reached the shallower waters of the North Sea, when, melting under the influence of the sun, they deposited upon its bottom the débris they carried.

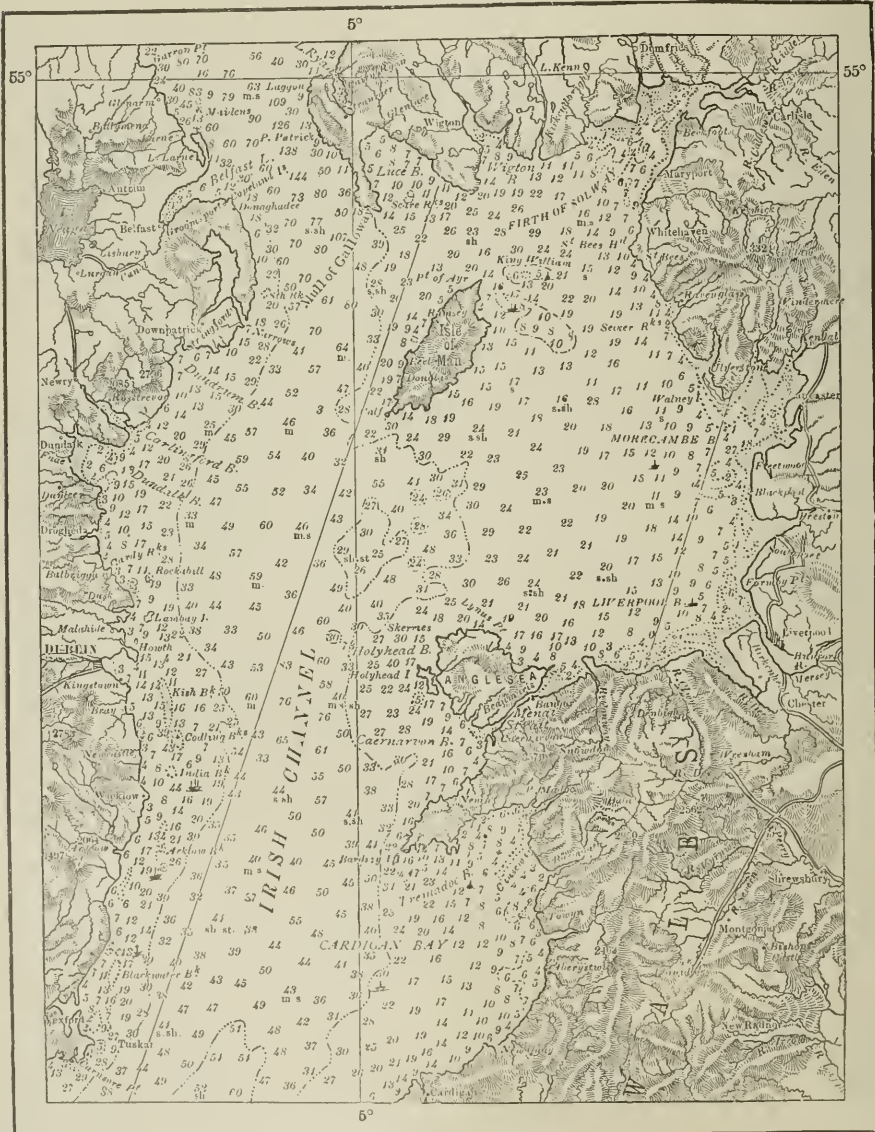
The Strait of Dover, which joins the North Sea to the English Channel, has a width of only 20 miles, and in depth nowhere exceeds 180 feet. The navigation is

* "Annales Hydrographiques," 4e trimestre, 1873.

not without danger, owing to conflicting currents and the sand-banks which cumber the approaches. The most famous of these banks are the Goodwins, off the coast of Kent, within which lies the roadstead called the Downs, a great resort of vessels waiting for favourable winds and tides. The English Channel gradually increases

Fig. 3.—THE IRISH SEA.

From an Admiralty Chart. Scale 1 : 795,000.



in depth as we proceed to the westward, until, off Land's End, it exceeds 300 feet.

The Irish Sea is far more considerable in depth than the German Ocean, and Ireland was an island lying off the coast of Western Europe long before Great

Britain had been severed from the neighbouring continent. Yet, compared with the open Atlantic, or even with inland seas in volcanic regions, its depth is inconsiderable. Only detached portions of its bed sink below 300 feet, and the maximum depth does not exceed 500 feet. In the North Channel, however, the depth is greater, being nowhere less than 300 feet, and attaining 664 feet in one of the "pits" lying midway between Galloway and the Lough of Belfast.

The tidal undulation reaches the British Islands from the south-west, and, travelling along the west coast of Ireland and Scotland, wheels completely round the north of the islands, so that the old tide coming from the northward, down the German Ocean, meets the Atlantic tide of twelve hours later date opposite to the mouth of the Thames. Similarly, opposite tidal currents penetrate into the Irish Sea from the north and the south, meeting about the parallel of the Isle of Man. The rise of the tide is generally greater on the exposed west coast than on either the south or east coast, but varies exceedingly according to local circumstances. Where tidal waves meet, a higher rise is the result, but where the time at which a high tide wave reaches a particular coast coincides with the moment of ebb of a tidal wave coming from another direction, the two undulations neutralise each other. Thus, on the south-east coast of Ireland, and at the Portland Bill, in the English Channel, the two undulations almost balance each other, and the tide is consequently hardly perceptible. On the contrary, when the tidal wave enters a narrowing arm of the sea or an estuary, it advances with increasing impetuosity, and attains a considerable height. The most conspicuous instance of this is presented by the Bristol Channel, which becomes shallower as it narrows, and where the spring tides consequently attain a height of 60 feet. The general rise of the tides, however, is far less.

GEOLOGY AND SURFACE FEATURES.

ENGLAND is distinguished among all the countries of Europe for its great variety of geological formations. It is the very paradise of geologists, for it may be said to be in itself an epitome of the geology of almost the whole of Europe, and of much of Asia and America. There are few formations which are not represented at least by a few patches, and so regular is their succession that the geology of England, in its general features no less than in its details, became sooner known to us than that of any other country in Europe. The geological map which William Smith published in 1815, after twenty-five years of unwearied work, in the course of which he traversed England on foot in all directions, is a remarkable work, and surprises by the relative perfection with which it brings to our knowledge the extent of the various geological formations.* Since his time a

* Table of British Formations, according to Professor A. C. Ramsay:—

Recent	Alluvia, Peat, and estuarine beds now forming, &c.
Post Tertiary	River and estuarine alluvia; glacier moraines and boulder clays; forest bed of Norfolk.
	[Tertiary

more minute survey has been carried on, revealing not only the surface geology in all its details, but throwing additional light upon the great mineral and metallic wealth hidden in the bowels of the earth. Even in fabulous times, long before history mentioned the names of the tribes who inhabited the British Islands, the mineral wealth of the Cassiterides, or Cornwall, attracted merchants from the Mediterranean; and to the present day, whatever may be the mineral riches of America or Australia, the British Islands remain the most productive mining country in the world. They owe their pre-eminence, however, not to tin, but to coal and iron.

The geological structure of Great Britain is prominently exhibited in its surface features. The older palæozoic rocks, which compose the most rugged and elevated mountain regions, lie to the west and north-west, whilst rocks of more recent age are spread over the hilly districts and lowlands.

In the rugged Highlands, which to the north of a line drawn from the Firth of Clyde to Stonehaven, on the German Ocean, fill up nearly the whole of Northern Scotland, are found gneiss and mica schist of the Silurian age, with numerous bosses of granite and syenite rising above the general level, and forming some of the most prominent peaks. Along part of the west coast these Silurian rocks overlies gneiss and sandstone of Cambrian and Laurentian age, closely resembling similar formations found in Canada. A deep fissure, occupied by a chain of lakes, and bounded by steep hills, stretches for a hundred miles from Loch Eil to the Moray Firth. This is the Glenmore, or "large valley." It separates the northern Highlands from the Grampians, in which rises Ben Nevis, the culminating point of the British Isles. The whole of this tract is sterile and desolate in aspect, consisting largely of peaty moorlands and brown heaths, and intersected by narrow glens and valleys, which afford pasturage to black cattle and sheep.

A wide plain separates this inhospitable region from the hilly district of Southern Scotland. This plain, stretching from the Clyde to the Forth, and

TERTIARY OR CAINOZOIC.	{	Pliocene	Norwich Crag, Red Crag. Coralline Crag.
		Miocene	Bovey Tracey and Mull beds, with igneous rocks.
		Eocene	Hempstead, Bembridge, Osborne, and Headon beds; Bracklesham and Bagshot beds; London Clay.
SECONDARY OR MESOZOIC	{	Cretaceous	Chalk, Greensand, Galt, Atherfield Clay.
		Wealden Series	Weald Clay, Hastings Sands, Purbeck beds.
		Oolitic Series	Portland Oolite and Kimmeridge Clay; Coral Rag and Oxford Clay; Cornbrash, Forest Marble, Bath Oolite; Stonesfield Slate and inferior Oolite.
		Lias	Clay, Marlstone, Rhætic beds.
		Triassic	New Red Marl (Keuper), New Red Sandstone (Bunter).
		Permian	Magnesian Limestone.
		Carboniferous	Coal Measures and Millstone Grit; Carboniferous Lime- stone and Shales.
		Old Red Sandstone and	
PRIMARY OR PALÆOZOIC	{	Devonian	Sandstones, Slate, Limestones, Shales, Marls, and Con- glomerate.
		Silurian	Arenig Slates, Bala or Caradoc beds, Ludlow Rocks.
		Cambrian	Grits and Slates of Longmynd and Wales, Tremadoc Slates.
		Laurentian	Gneiss.



extending northward to Montrose, is occupied by old red sandstone and marl, and by the shales, sandstones, and limestones of the carboniferous series. Masses of igneous rocks rise above its surface and diversify its scenery. By its fertility this plain contrasts most strikingly with the Grampians, which, like a wall, bound

Fig. 4.—COTIDAL LINES.
According to Scott Russell. Scale 1 : 10,625,000.



it on the north. It is rich, moreover, in coal and iron, and has become a great centre of population.

The hills of Southern Scotland, sometimes called the Cheviot Region, after the range of hills which almost severs Scotland from England, resemble the Grampians in geological formation, consisting, like them, of Silurian rocks; but being less rugged in their character, and penetrated by broader valleys of considerable fertility, they are far more hospitable. Extensive tracts are covered with grass,

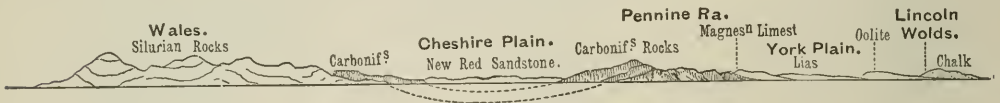
affording excellent pasture to sheep, and agriculture is successfully carried on in the Tweeddale and other valleys.

A gap, through which passes the railway from Newcastle to Carlisle, and which lies at an elevation of only 446 feet above the level of the sea, separates the Cheviot Hills from a broad range of carboniferous rocks which forms the backbone of Northern England, and stretches from Northumberland to Derbyshire. This is the Pennine chain, a region of moors, heaths, and grassy uplands, intersected by verdant valleys abounding in picturesque scenery. In the west this chain presents a steep slope towards the Irish Sea, whilst to the east it dips down gently, and finally disappears beneath a band of magnesian limestone, which separates the carboniferous rocks from the more recent formations occupying the plain of York. The wealth of the Pennine chain in coal and iron has attracted to it a dense population, and flourishing manufacturing towns have arisen upon what were once desolate moorlands.

A transverse ridge, crossed by the pass of Shap Fell, which joins the narrow glen of the Lune to the broad and fertile plain of the Eden, and through which runs one of the two main roads connecting England and Scotland, joins the Pennine range to the mountain group of Cumbria. Consisting largely of Silurian

Fig. 5.—SECTION FROM SNOWDON TO THE EAST OF ENGLAND.

According to Professor Ramsay.



slates, this mountain group is famous for its pastoral scenery, its lakes and wooded valleys.

The broad plain of Chester separates the Pennine chain from the Cambrian or Welsh mountains, composed of highly disturbed and distorted strata of Silurian and Cambrian slates, intermingled with igneous rocks, and interbedded with lavas and beds of volcanic ashes. In the south-east these ancient rocks are overlaid successively by old red sandstone and carboniferous limestone, and there the country, though hilly and even mountainous, is naturally fertile. In the remainder of Wales, however, although there are not wanting broad alluvial valleys bounded by wooded hills, vast tracts are covered with heath, and are only fit for pasture.

When we cross the Bristol Channel we enter the last mountainous region of England—that which comprehends the counties of Devon and Cornwall, and attains its highest elevation in the granitic moorlands of Dartmoor. Geologically this region differs totally from Wales, Silurian rocks being altogether absent, and Devonian strata the oldest formation met with. This south-western peninsula of England is, in fact, closely allied to the peninsula of Brittany in France, from which it is severed now by the Channel, but whence it derived its population, and also, in part at least, its flora. Its mountain ranges and hills are

bleak and treeless, as are those in the north, but they yield copper, tin, and lead, and between them lie broad pasture-lands and fruitful valleys.*

A broad expanse of comparatively level land separates the barren palæozoic mountain ranges of England and Wales from the uplands and plains which occupy the entire eastern part of the country. Spreading over the whole of Central England, this level tract extends along the eastern foot of the Pennine range to the coast of Yorkshire, merges on the west into the wide plain of Cheshire and Lancashire, and can be traced southwards into the valley of the Severn, and beyond, through the vale of Taunton and other low-lying districts, to the south coast of Devonshire. Nearly the whole of this extensive region is occupied by the sandstones, limestones, clays, and marls of the triassic and liassic formations, the harder of these rocks often rising into minor escarpments facing westwards, and overlooking rich undulating meadow lands and cultivated fields.

On the east these plains and undulating grounds are bounded by an oolitic limestone range, which traverses England from the coast of Dorsetshire to the estuary of the Tees, presenting a bold escarpment towards the west, on ascending which we find ourselves upon an undulating table-land, mostly occupied by sheep pastures. The Cotswold Hills, which bound the vale of Gloucester, and the moorlands of Yorkshire, far away in the north, both belong to this formation. Around the Wash it disappears beneath the alluvial flats of the Bedford level, but everywhere else it dips below the chalk, which forms so prominent a feature in the physical geography of South-eastern England.

The chalk, like the oolitic limestone, generally presents a bold escarpment towards the west. It is most extensively developed on the plain of Salisbury. From this, as a centre, the ranges of chalk diverge in different directions. The South Downs stretch along the coast of the Channel as far as Beachy Head. The North Downs bound the valley of the Thames on the south, and terminate in the cliffs of Dover. A third range extends to the north-eastward, forming the Marlborough Downs, the Chiltern Hills, and the East Anglian Heights, which terminate with Hunstanton Cliff, at the mouth of the Wash, but once again rise to the north of that shallow bay in the wolds of Lincoln and York.

Clays, sands, limestones, and crag of the tertiary age overlie the chalk in the so-called basins of London and Hampshire; but between the North and South Downs the chalk has been removed by denudation, and the subjacent strata which occupy the district known as the Weald have been laid bare. Bounded by escarpments of

* Culminating summits of mountain groups of Great Britain :—

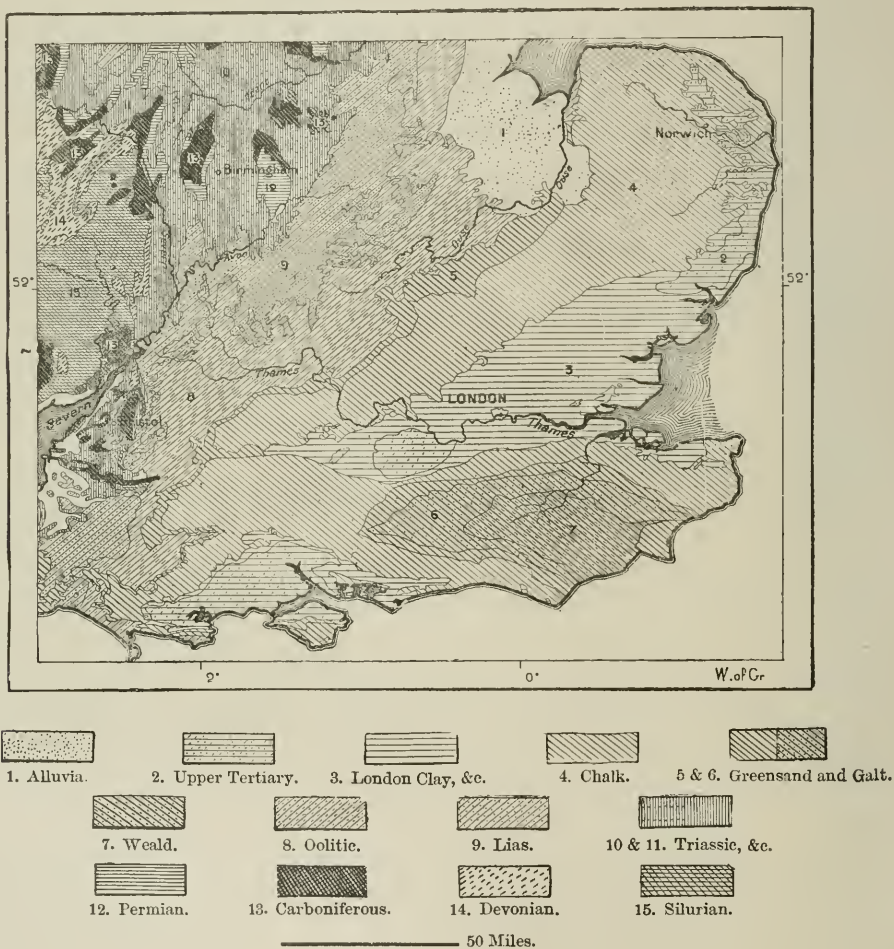
Northern Highlands, Ben Wyvis	3,422 feet.
Grampians, Ben Nevis	4,406 "
" Ben Muich (Màc) Dhuì	4,296 "
Hills of South Scotland, Merrick	2,764 "
" " Cheviot	2,669 "
Pennine Chain, Cross Fell	2,928 "
Cambrian mountains, Sea Fell	3,220 "
Welsh mountains, Snowdon	3,590 "
Mountains of Devonshire and Cornwall, Yes Tor (Dartmoor)	2,077 "

chalk, this area of denudation opens out like an ancient bay upon the English Channel. Its level parts consist of clay, above which rises a central ridge composed of Hastings sands.*

Quite as striking as the contrast between the rugged mountain regions which occupy North Britain and the west of England is the difference of aspect presented by the opposite coasts of the island. The east coast is of uniform contour, and

Fig. 6.—GEOLOGICAL MAP OF SOUTH-EASTERN ENGLAND.

According to Best. Scale 1 : 3,350,000.



almost devoid of natural harbours, but their absence is somewhat compensated for by the existence of estuaries; the approaches to these, however, are often rendered

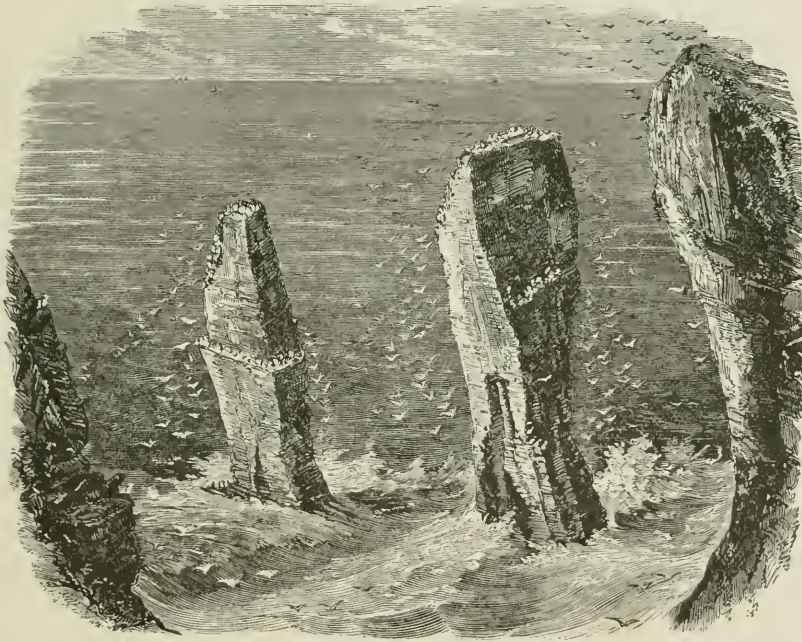
* Culminating points of the uplands of Eastern England:—

OOLITIC LIMESTONE RANGES	Cotswold Hills, Cleeve Hill	1,134 feet.
	York Moors, Botton Head	1,498 "
	South Downs, Butser Hill	883 "
CRETACEOUS RANGES	North Downs, Inkpen Beacon	973 "
	Leith Hill	967 "
	Chiltern Hills, Wendover Hill	905 "

dangerous by shoals and sand-banks. Marshes and shelving beaches are frequent along it, and the cliffs being for the most part composed of chalk, clay, or sand, and unable to resist the assaults of the ocean, crumble away. In many places the sea gains upon the land rapidly.

Very different are the features of the western coast. Its contour exhibits far greater variety. In Scotland more especially it is indented by numerous sea lochs, bounded by bold mountains, reminding us of the fiords of Norway. Whilst along the whole of the eastern coast there is but one island of any note, the western coast of Scotland is skirted by the double chain of the Hebrides, the Isle of Man occupies the centre of the Irish Sea, and Anglesey lies off the coast of Wales. There are not wanting low sandy shores and tracts of marshy land, but bold cliffs

Fig. 7.—THE STACK ROCKS, SOUTH WALES.



form its characteristic feature. Being composed of solid rocks, these headlands are better able to resist the wasting action of the sea than are the soft cliffs along the east coast. Yet that waste, however slow, is going on here also is proved by the detached masses of rock known as "Needles" or "Stacks," which stand apart from the cliffs from which they have been severed by the erosive action of the tides and waves.

The south-east coast of England resembles the east, but the western rises into bold cliffs of old red sandstone and granite. It is deficient in natural harbours, and cliffs of chalk alternate with stretches of marsh and flat tracts of clay; but immediately to the west of Selsey Bill the safe roadstead of Spithead opens out between the mainland and the Isle of Wight, communicating with the spacious harbour of Portsmouth and the well-sheltered estuary leading up to Southampton.

Farther west still, amongst the many bays which indent the coasts of Devon and Cornwall, the foremost place belongs to Plymouth Sound, which ranks with Chatham and Portsmouth as a great naval station.

If we now turn to a consideration of the principal features of Ireland, we shall find that they differ essentially from those presented by the more favoured sister island. Less varied in its contour, it exhibits likewise greater simplicity in

Fig. 8.—PLYMOUTH SOUND AND THE HAMOAZE.

From an Admiralty Chart. Scale 1 : 150,000.



its geological structure. Broadly speaking, it may be described as consisting of a great central plain of carboniferous limestone, stretching across from sea to sea, and bounded in nearly all directions by mountain masses composed of the most ancient geological formations.* The highlands of the north-east, north-west, and west consist of the same crystalline and Silurian rocks which are so extensively developed in Scotland. The south-eastern highlands likewise consist of Silurian strata penetrated by granite, and overlying Cambrian rocks, thus repeating the features which

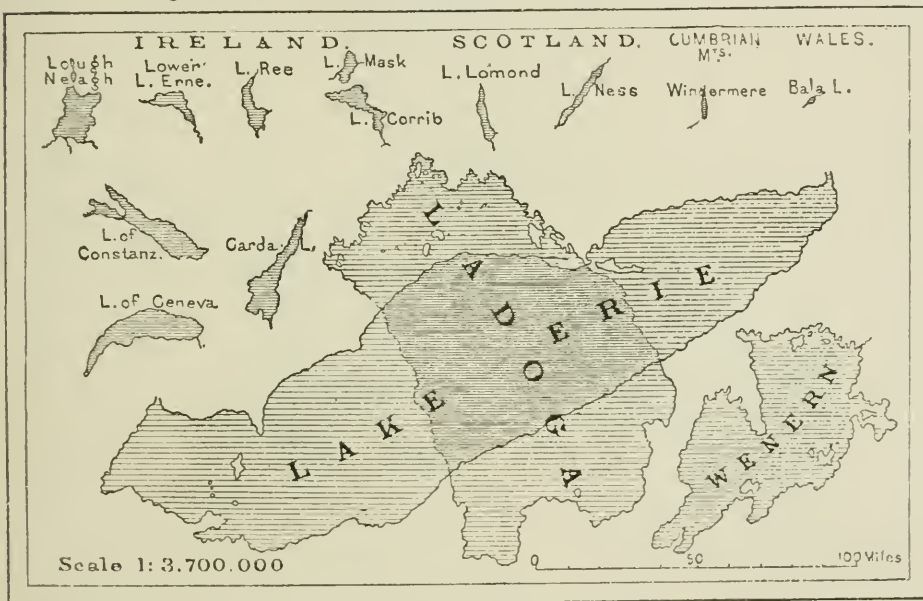
* E. Hull, "The Physical Geology and Geography of Ireland."

distinguish North-western Wales, on the other side of St. George's Channel. But whilst in Wales the old red sandstone occupies the region to the east of the more ancient rocks, it extends in Ireland to the south-west, rising into a succession of ranges, amongst which lies the culminating point of the entire island.*

The geological formations which in Great Britain intervene between the old red sandstone and the upper tertiary beds are in Ireland either wanting altogether, or occur only sparingly, being confined to the north-east of the island, where they crop out beneath the vast sheet of basalt which forms the striking scenery along the coast of Antrim.

In its coast-line Ireland presents features analogous to those of Great Britain. The eastern coast is mostly flat, and obstructed by sunken rocks and sand-banks,

Fig. 9.—COMPARATIVE SIZE OF SOME BRITISH AND FOREIGN LAKES.



whilst the western coast, facing the open Atlantic, abounds in deep inlets, or fiords, separated by rocky peninsulas terminating in bold headlands. There are many excellent harbours, but, owing to their remoteness from seats of industry, they are little frequented.

RIVERS AND LAKES.

COMPARED with the rivers of Continental Europe, those of Great Britain are inferior in length of course, volume, and the extent of the basins they drain; but when we consider the facilities they offer for navigation, those of England, at all events,

* Culminating summits in Ireland:—

North-eastern highlands, Slieve Donard (Mourne)	2,796 feet.
North-western highlands, Errigal (Donegal)	2,466 „
Western highlands, Muilrea (Mayo)	2,688 „
South-eastern highlands, Lugnaquilla (Wicklow)	3,039 „
South-western highlands, Carratuohill (Kerry)	3,414 „

The largest of these is Lough Neagh, which covers an area of 156 square miles, whilst Loch Lomond, the most extensive Highland lake, only spreads over 45. But size is not beauty, and few of the lakes of Ireland can compare with those of the Highlands and the Cumbrian hills in their picturesque surroundings. Yet even the largest of the Irish lakes is insignificant if we contrast it with the vast sheets of fresh water met with in other countries, more especially in North America.

A line drawn through Great Britain to mark the water-parting between the rivers which empty into the German Ocean and those flowing towards the west will be found to divide the island into two unequal portions, the larger of which lies to the east. Nearly all the great rivers flow in that direction, the Severn forming the only notable exception. In Ireland, on the other hand, the drainage is principally to the westward and southward, the Boyne being the only river of any importance which flows into the Irish Sea.*

CLIMATE.

GREAT are the advantages which the British Isles derive from the mildness and equability of their climate. Washed by the tepid waters which move slowly from the tropical seas towards the Arctic Ocean, they form part of the domain of the Atlantic, whose humid atmosphere envelops them. Nowhere else in the world, except in the Farøe Isles and on the western coast of Norway, does the actual temperature differ to the same extent from the temperature which might be looked for from the geographical position of the country with reference to the equator. In no other instance do the isothermal lines sweep so far to the northward. The mean annual temperature of Ireland, under lat. 52° N., is the same as that of the eastern coast of America, 980 miles farther south, under lat. 38° , and the winters in the extreme north of Scotland are as mild as in the New World, 20° of latitude nearer to the equator.

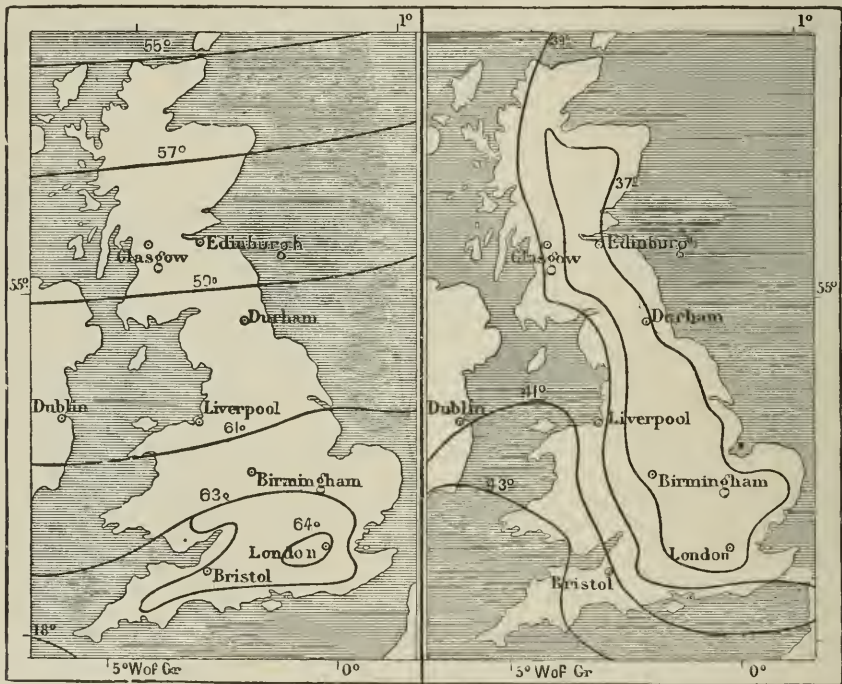
* The principal river basins of the British Islands, including all those having an area of over 1,000 square miles :—

	Area in Sq. Miles.	Length in Miles.		Area in Sq. Miles.	Length in Miles.
GREAT BRITAIN: EASTERN WATERSHED.			GREAT BRITAIN: WESTERN WATERSHED.		
Spey	1,190	96	Severn	8,119	186
Dee of Aberdeen	765	87	Severn proper	4,350	158
Tay	2,250	107	Avon of Bristol	891	62
Forth	645	60	Wye	1,609	135
Tweed	1,870	96	Usk	540	65
Tyne	1,083	73	Mersey	1,722	85
Humber	9,293	204	Eden	995	69
Trent	4,052	167	Clyde	1,580	98
Ouse	4,207	131			
Witham	1,050	89	IRELAND.		
Nen	1,055	99	Boyne	1,040	70
Great Ouse	2,766	156	Earrow, Suir, and Nore	3,555	119
Yare and Waveney	1,210	81	Blackwater	1,284	104
Thames and Medway	5,935	215	Shannon	6,060	225
			Corrib	1,212	64
GREAT BRITAIN: SOUTHERN WATERSHED.			Erne	1,689	64
Avon of Salisbury	1,132	67	Foyle	1,129	73
			Bann	2,242	85

In summer, when the temperature of the air is higher than that of the ocean, the latter exercises a moderating influence upon the degree of heat, more especially in the west. Only in the inland counties and on part of the east coast do we meet with features reminding us of a continental climate. The temperature during that season decreases with a considerable degree of uniformity from 63° Fahr., in the Thames valley, to 54° in the Orkneys, and the isothermals run across the country from east to west.

Very different are the climatic conditions of winter, for it is then that the tepid waters of the Atlantic, by considerably raising the temperature of the air, exercise

Fig. 11.—ISOTHERMAL LINES FOR JULY AND JANUARY.
According to Alexander Buchan.



Temperature of July.

Temperature of January.

more powerfully their beneficent influence. The isothermal lines, instead of turning east and west, then almost follow the direction of the meridians, and the mean temperature of the Orkney Islands is hardly inferior to that of London, situated over 500 miles to the south. In the eastern part of Great Britain, and more especially in that portion of it which lies between the Naze and the Firth of Forth, the winter is coldest, owing to the greater exposure to easterly winds blowing from the ice-clad plains of the continent, as well as to the lower temperature of the German Ocean,* whilst the warm westerly winds are shut out by meridional

* Temperature of the Atlantic in January, on the north-west coast of Scotland, 45° Fahr., or 5° warmer than the air. Temperature of the northern part of the German Ocean, 41° , or 2° warmer than the air.

mountain ranges. January is a far colder month on the banks of the Thames than in the Hebrides, and plants which the frosts of Middlesex would kill flourish in these islands in the open air, even in midwinter.* Yet it happens but rarely that the larger rivers become ice-bound, and a sight such as the Thames presented in February, 1814, when it was frozen over above London Bridge, and placards announced that there was a "safe pathway over the river to Bankside," is not likely to be seen again, since it was due in some measure to old London Bridge, with its narrow arches, which now no longer obstructs the free passage of the river. The winter temperature is mildest on the southern coasts of Devonshire and Cornwall, and there the myrtle and other sub-tropical plants flourish in the open air all the year round.

Snow and ice are known, of course, and the quantity of the former which occasionally falls in Northern England and in the Scotch Highlands is great. It is rare, however, for the thermometer to fall below 18° Fahr., and rarer still for such a degree of cold to continue for any length of time. The difference between the mean temperature of the coldest and warmest months hardly ever exceeds 25° Fahr., and in South-western England it does not amount to 19° Fahr. This is very little when compared with places on the continent, for at Paris and Rome it amounts to 30° Fahr., at Berlin to 36° Fahr., and at Vienna to 40° Fahr. The daily range of the summer temperature in Shetland, the Orkneys, and the Hebrides, which enjoy perhaps the most insular climate in Europe, is only about 10° Fahr. On the west shore of Great Britain it rises to 12° and 14° Fahr., in the central districts to 15° Fahr., and in the south to 20° Fahr. At Paris and other places on the continent it is much higher.†

The direction of the winds naturally exercises an important influence upon temperature, no less than upon the distribution and amount of rain. The westerly winds, which preponderate throughout the year, and more especially in summer and autumn, carry with them the warmth and moisture of the Atlantic. Easterly

* Ramsay, "Physical Geography and Geology of the British Isles."

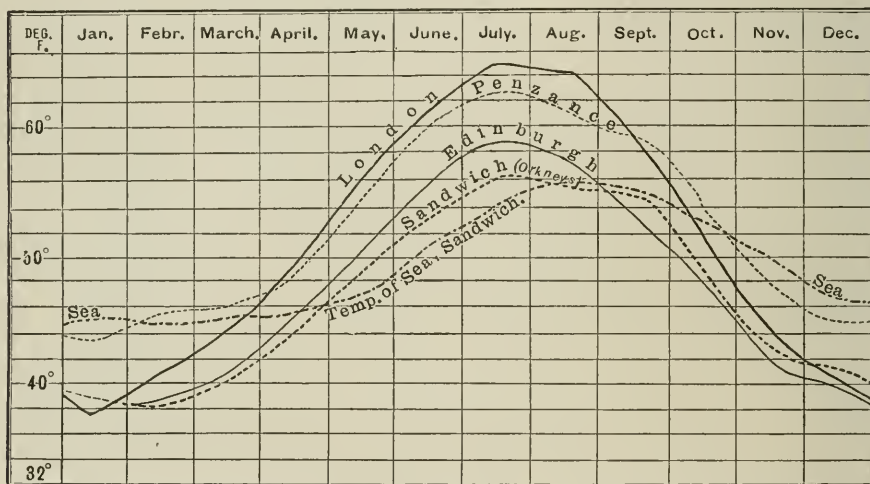
† MEAN TEMPERATURE IN DEGREES FAHRENHEIT.

	Latitude.	Winter.	Spring.	Summer.	Autumn.	Year.	Difference between coldest and warmest Month.
Sandwich (Orkneys)	$59^{\circ}5'$	39.1°	43.9°	54.3°	47.5°	46.2°	17.2°
Aberdeen	$57^{\circ}9'$	38.9	48.2	57.3	49.9	48.6	22.6
Glasgow	$55^{\circ}51'$	39.7	46.5	60.1	44.4	47.7	23.0
Edinburgh	$55^{\circ}27'$	38.4	45.0	57.1	47.8	47.1	21.3
Carlisle	$54^{\circ}54'$	37.2	45.4	57.4	47.8	47.0	22.3
York	$53^{\circ}51'$	36.3	49.4	62.4	48.6	49.2	24.8
Manchester	$53^{\circ}29'$	38.3	47.4	59.8	49.7	48.8	24.1
Liverpool	$53^{\circ}25'$	41.3	49.3	61.1	51.5	50.8	21.7
Dublin	$53^{\circ}21'$	40.6	48.5	61.0	50.0	50.0	17.7
Birmingham	$52^{\circ}55'$	38.8	49.0	61.5	50.4	50.0	25.2
Limerick	$52^{\circ}39'$	41.6	48.5	58.6	49.2	49.5	18.7
Oxford	$51^{\circ}46'$	37.0	47.2	60.4	50.0	48.6	24.2
Swansea	$51^{\circ}36'$	45.5	49.7	63.7	56.0	53.7	24.4
London	$51^{\circ}30'$	39.5	49.1	62.9	51.8	50.8	26.7
Gosport	$50^{\circ}47'$	40.0	50.1	62.7	53.4	51.8	25.0
Plymouth	$50^{\circ}22'$	44.9	49.7	60.9	52.9	52.1	17.4
Penzance	$50^{\circ}7'$	44.2	49.3	60.9	52.7	51.8	19.5

winds are most frequent between January and May. They are dry and cold, checking the vegetation in spring, and are frequently productive of those dense fogs which have given the British climate so unenviable a reputation.

To the annual amount of rain, and its distribution over the year, the British Isles are largely indebted for their fertility, and under this beneficent influence even naturally sterile tracts, which in many other countries would present an aspect of desolation, become covered with a carpet of verdure, and afford at least succulent pasturage to sheep. Even in the eastern counties, which are less exposed to the westerly moisture-laden winds, the rainfall is ample, and numerous rivers and rivulets irrigate the soil. On an average far more rain falls than in France,* and though, owing to the greater humidity of the atmosphere, the amount of evaporation is less, the area occupied by marshes is of small extent. In England this circumstance is due to the undulations of the soil, which

Fig. 12.—DIAGRAM EXHIBITING THE ANNUAL MARCH OF TEMPERATURE.



facilitate the drainage of the land; whilst in Ireland the surplus waters collect in lakes, occupying rocky cavities, or are sucked up by peat bogs, without filling the air with pestiferous miasmata.

The rainfall is most considerable in the west, because the mountain ranges extending north and south intercept the westerly winds which travel across the wide expanse of the Atlantic, and compel them to part with most of the moisture they carry. In Ireland the quantity of rain increases gradually as we proceed from the west to the east coast, and the same phenomenon, on a larger scale, may be observed in Great Britain. Nowhere else is the influence which mountain ranges exercise upon the distribution of rain more strikingly exhibited, its amount being in every case most considerable along the western slope. At Whitehaven, which lies at the western foot of the Cumbrian hills, the annual fall of rain is 47 inches, whilst

* Average rainfall in France (Delesse)	.	.	.	.	.	30 inches.
"	"	Great Britain	.	.	.	33 "
"	"	Ireland	.	.	.	36 "

at York, beyond the Pennine range, it is only 29 inches. Still more considerable are the differences between the lowlands and the mountainous districts. In the west of Great Britain and in Ireland, in the immediate neighbourhood of high hills, the average rainfall is from 80 to 150 inches, and in certain localities it is higher. Thus at the Sty, in Cumberland, 950 feet above the level of the sea, 224 inches of rain fell in 1866, a quantity immensely in excess of what has been recorded in any other part of the temperate zone, and exceeded only by the downpour at certain localities lying within the tropics.*

It was Mr. Dalton who first observed that the rainfall in the British Isles is most considerable in autumn, and not in summer, as in Central Europe. There are, however, a few stations where, owing to local causes, the maximum occurs in winter or in summer.

The variability and uncertainty of the climate of Great Britain are frequently dwelt upon as a great disadvantage, but a dispassionate inquiry, and, above all, a comparison with other lands, popularly supposed to be more favourably circumstanced, must convince us that there are equal countervailing advantages. Sudden changes of temperature and moisture may prove hurtful in the case of certain diseases, but the climate upon the whole is favourable to the development of the physical powers, and hence of the moral and intellectual endowments of man. King Charles II. was not far wrong when, in answer to some disparaging remarks of his courtiers, who extolled the climates of Italy, Spain, and France, at the expense of that of England, he said he thought "that was the best climate where he could be abroad in the air with pleasure, or at least without trouble and inconvenience, the most days of the year and the most hours of the day; and this he thought he could be in England more than in any other country in Europe." †

* AVERAGE RAINFALL IN INCHES.

	Winter.	Spring.	Summer.	Autumn.	Year.
Eastern slope of Great Britain :—					
Edinburgh	5·8	5·3	6·7	7·4	25·2
York	5·1	5·1	7·1	11·4	28·7
Oxford	4·8	4·5	7·1	7·3	23·7
London	4·0	3·8	5·6	5·8	19·2
Hull	3·2	2·1	7·0	5·8	18·2
South Coast :—					
Gosport	8·2	6·9	7·1	10·1	32·3
Penzance	14·1	9·4	8·4	14·0	45·9
Western slope of Great Britain :—					
Liverpool	7·3	6·2	9·8	10·8	34·1
Manchester	8·1	6·9	9·9	10·6	35·5
Lancaster	11·2	6·4	11·2	11·7	40·5
Kendal	16·1	9·6	12·7	15·3	53·7
Seathwaite (Borrowdale) . .	43·0	22·8	33·2	43·2	142·2
Whitehaven	12·7	7·1	13·7	13·8	47·3
Glasgow	5·3	3·7	6·4	5·8	21·2
Ireland :—					
West Port.	12·3	11·7	11·7	10·1	45·8
Limerick	7·7	7·1	9·3	10·1	34·2
Armagh	9·6	6·8	8·9	9·4	34·7
Dublin.	6·8	5·9	8·1	8·5	29·3

† Sir W. Temple, Works, iii. p. 220.

The influence of this climate upon the animal creation, and even upon the vegetable kingdom, is as favourable as upon the human constitution. The warmth of summer is never so great, nor is its accession so sudden, as to occasion a too rapid development or too high excitement of organized bodies; nor the cold of winter so extreme as to depress their vitality to an injurious degree. The natural formation, soil, and cultivation, with few exceptions, prevent the generation of marsh effluvia, whilst the fresh and strong westerly winds which prevail,

Fig. 13.—RAIN MAP OF THE BRITISH ISLES.
According to Symons. Scale 1 : 10,600,000.



owing to the position of the country, cause a continued renewal of the atmosphere, even in the closest and most crowded streets of the manufacturing towns.*

These climatic conditions have, moreover, vastly contributed to make the British Isles a geographical whole, and in amalgamating the various races by whom they are inhabited. In most other countries migration is attended with considerable risk, and a period of acclimatization has usually to be passed through. In Great Britain the natives of either England or Scotland may exchange homes

* MacCulloch, "Statistical Account of the British Empire," i.

without being inconvenienced to the same extent as would Bretons or Provençals under similar circumstances. On the other hand, foreigners born under brighter skies generally complain about the paleness of the sun, and of the fogs, which in some of the towns, where they are impregnated with the smoke rising from thousands of chimneys, are very dense, and hinder the free circulation of the air.

FLORA.

IN its main features the British flora resembles that of Continental Europe, with a strong intermingling of American species, increasing in number as we travel towards the west. There are only a few plants not indigenous to Continental Europe, of which the most remarkable is the jointed pipewort, or *Eriocaulon septangulare*, a native of tropical America, found in the Isle of Skye and in the west of Ireland, whither the gulf-stream has carried it.

The researches of botanists have clearly established the fact that the existing flora is the outcome of successive floral invasions which transpired during the tertiary age, whilst the British Islands still formed a part of the neighbouring continent. The first of these invasions of surviving species took place probably in the eocene age, and is confined to the hilly parts of South-western Ireland. It is an alpine flora, quite distinct from the flora of the Scotch and Welsh mountains, and has been traced to the Western Pyrenees. A second botanical province embraces Devonshire and Cornwall, South Wales, and a considerable portion of Southern Ireland. When this flora first obtained a footing upon the British Isles a barrier must have stretched across what is now the English Channel to Brittany and Normandy. Some of its most characteristic species are the beautiful ciliated heath, the purple spurge, and the graceful Sibthorpia. A third invasion took place when England was joined to the north of France. This flora is more especially developed in the chalk districts of South-eastern England. To this succeeded, during the glacial period, an invasion of alpine plants, principally from Norway, which survive on the hills of Wales, Northern England, and Scotland. When the glaciers finally melted away, and the land emerged anew, there occurred the fifth invasion, the last in order of time, but the most important in its influence on the character of British vegetation. This invasion emanated from Germany, at that period joined to the British Isles by a wide plain stretching across the southern portion of the North Sea. This hardy flora rapidly spread over the country, where it found a congenial soil; it invaded Scotland and Ireland, mingled with the floras of more ancient date, and pushed them back to the west and south-west.

Though Europe has played the principal part in giving to the British Isles their vegetable clothing, America, too, has contributed a share; but whilst the European species migrated by land, those of American origin were carried to these shores, as to the coast of Norway, through the agency of the gulf-stream, and hence they are most numerous on the Hebrides, the Orkneys, and the Shetland Islands, where they outnumber European species.

Climate has exercised a paramount influence upon the distribution of British

plants. The cool summer prevents the ripening of many fruits which flourish in countries having a far lower mean annual temperature, whilst the mildness of winter has rendered it possible to naturalise many plants of southern climes, which the cold winter of the north of Continental Europe would kill. Apricots, peaches, and grapes only ripen, with rare exceptions, when afforded the shelter of a wall; yet myrtles and other evergreens flourish in the open air, and the strawberry-tree (*Arbutus unedo*), with its rich foliage and red berries, forms a charming feature in the woods of Killarney. Many exotics, including even natives of the tropics, have been successfully introduced, and add to the beauty of pleasure grounds and

Fig. 14.—YUCCAS ON TRESKO (SCILLY ISLANDS).



parks. Cacti grow in the rocks near Torquay; the American aloe flourishes in Salcombe Bay; magnolias from South America, proteas from the Cape, and camellias from Japan, are successfully cultivated; and on Tresco, one of the Scilly Islands, we meet with a fine avenue of yuccas. But ornamental plants are not the only exotics, for most of the bread corns, including wheat, barley, and rye; the potato; much of the produce of the kitchen gardens; and many other plants now widely cultivated, have been derived from other and warmer climates.

In Roman and Saxon times a considerable part of the country was covered with forests, formed, as now, of oaks and beeches, birches and Scotch firs,

almost to the exclusion of other trees. Most of these forests have either wholly disappeared, or have been considerably reduced in size. Extensive woods survive, however, in portions of Scotland and England, the most famous being the New Forest in Hampshire, Dean Forest in Gloucestershire, and Sherwood Forest in Nottinghamshire. There the lover of nature may still ramble beneath woodland

Fig. 15.—AN ENGLISH HOMESTEAD



trees, whilst elsewhere, though the name of “forest” is retained, the trees have disappeared to make room for fields and pastures; and though Great Britain does not equal certain continental countries in the extent of its forests, it is still appropriately described as a “woody region.” From the southern shore of England to the foot of the Grampians, beyond the Clyde and the Tay, and for several hundred feet up the slopes of the mountains, this woody region

stretches. It is eloquently described by Mr. Watson * as “an undulating plain of meadows, pastures, and cultivated fields, separated from each other by hawthorn hedges or stone walls, and thickly interspersed with parks, woods, gardens, towns, and high-roads, altogether betokening a climate where man may attain a high state of civilisation, and live for ease and pleasure, as well as for laborious occupations. It is the region where the trees flourish, and the flowers, rendered classic by our poets, bloom, and is not less loved by many of us, because their very commonness has made them familiar by vernacular names, without the aid of botanical systems or a dead language. It is, *par excellence*, the land of the daisy and cowslip, the oak and hawthorn, the hazel copse and the woodbine bower: the region of fruits and flowers, where the trees of the forest unite a graceful beauty with strength and majesty, and where the fresh greensward of the pasture, commingling with the yellow waves of the corn-field, tells to us that here at least

‘The cheek of Spring
Smiles in the kiss of Autumn.’

“Black swampy moors, such as deface so large a portion of the next, or barren, region, are in this of comparatively rare occurrence and small extent. The downs and chases in early spring are covered with the countless blossoms of the golden gorse, or the more gaudy broom, and empurpled with the different kinds of heath during summer and autumn. Little, indeed, as we may regard these shrubs, in Sweden and North Russia the gorse is prized as we prize the myrtles of the south; and our common heaths are unknown over a wide extent of Europe. The oak, ash, yew, hornbeam, alders, elms, poplars, and willows are the principal native trees of this region; the first four gradually yielding to the pine, white birch, and mountain ash as we approach the higher portion, forming the upland zone. The beech, sycamore, and Spanish chestnut have been introduced, and the first two now spring up self-sown and readily. A climate in which the heat of summer is rarely excessive, and where rain and clouds are so frequent, is unadapted to the spontaneous growth of fruits, and we accordingly find our native productions poor in the extreme. The wild cherry, crab, bullace, and native pear are the arborescent fruit trees. The raspberry, strawberry, blackberry, sloe, hazel nut, hip and haw, form a very indifferent catalogue for our shrubby and herbaceous fruit plants. The cranberry, bilberry, and crowberry, with the fruit of the mountain ash and juniper, common to this and the barren region, are greatly surpassed by one fruit, almost peculiar to the latter, viz. the cloudberry. Lastly, the different kinds of gooseberries and currants cultivated in our gardens are probably derived from species indigenous to Britain, and are very apt to spring up in our woods and hedges from translated seeds.”

When we leave these smiling lowlands, so characteristic of England, we pass through an upland affording excellent pasturage for sheep and cattle, and finally enter the barren tracts of moorlands and peat bogs, which cover a wide area in the Highlands of Scotland, no less than in the mountain regions of England and Wales.

* “Distribution of British Plants.”

FAUNA.

THE British fauna has undergone many vicissitudes in the course of ages. Not only have large mammals, which we know to have been the contemporaries of pre-historic man, perished, but even during historical times, as civilisation progressed, and land was more and more brought under cultivation, several wild animals have been exterminated. Of the existence of such southern types as the cave lion, the hippopotamus, the mammoth, and hyena, or of the northern reindeer and the great Irish deer, we only possess records furnished by deposits in caverns and river gravels. The wild ox, a fierce and powerful animal of white colour, which abounded in the time of the Romans, still browses in Hamilton Forest, near Cadzow Castle, in Lanarkshire, and in a few other parks, but it is virtually extinct as a wild animal. British bears, which excited much admiration at Rome, were last heard of in the eleventh century, when a Gordon, as a reward for his valour in killing one, was granted three bears' heads as a coat of arms. The wolf, during Anglo-Saxon times, was a most destructive animal, and, to encourage its extermination, wolves' tongues were accepted in expiation of certain crimes, and in payment of the tribute exacted from the Welsh. But it survived, for all that, for many centuries afterwards, and the last was killed in Scotland in 1680, and in Ireland only in the beginning of the eighteenth century. The wild boar was extirpated at the time of the Civil War, having been preserved up till then as a favourite animal of chase. The beaver, even at the time when Giraldus Cambrensis travelled in Wales, in 1188, had become scarce, and was confined to a few rivers of that principality; and birds, though far better able than land animals to elude their pursuers, have become extinct almost within the memory of man. The original capercaillie, or great cock of the wood, still frequent in Europe, and formerly in the fir woods of Scotland and Ireland, has not been seen since 1760, whilst the great bustard (*Otis tarda*) has disappeared more recently. The latter had its last home on the downs of Wiltshire.

The only wild carnivorous quadrupeds still forming part of the British fauna are the fox, the badger, the otter, the weasel, the polecat, the stoat, the marten, and the wild cat. All of these have become scarce, and the fox, at all events, would have been exterminated long ago, if it were not for the protection extended to it by the lovers of field sports.

The ruminating animals are represented by the stag, or red deer, the roebuck, and the fallow deer, the latter now extending to Ireland. The stag is confined to the Highlands of Scotland, Exmoor Forest, and the woods of Killarney, but formerly its range was far more extensive. Amongst gnawing animals are the hare, rabbit, squirrel, and dormouse, together with a large variety of rats and mice, whilst the insect eaters include the hedgehog and the mole, which are general in fields and heaths throughout England.

Very considerable is the number of birds, not in species only, but also in individuals, and since legislation has spread its sheltering mantle over most of them, the day when British woods and fields will be without their feathered

songsters is probably a very remote one. Many of these birds are stationary; others only visit the British Isles during part of the year. Amongst stationary birds are many sweet songsters—including thrushes, finches, linnets, blackbirds, and skylarks—robins and sparrows, rooks, crows, and starlings, the latter devouring prodigious quantities of slugs, worms, &c., so noxious to the farmer, whilst others render themselves equally useful by keeping within bounds the myriads of insects. In this task they are aided by numerous songsters and other birds which arrive as the heralds of spring, and return to more congenial climates in the fall of the year. Amongst these birds of passage are the swallow, the cuckoo, the martin, the quail, the stork (a very rare visitor), and the nightingale, which occasionally extends its wanderings as far as Yorkshire, but never crosses over to Ireland. Other birds, whose breeding-places are in the arctic regions, visit the British Islands in winter. Most prominent among these are fieldfares, woodcocks, snipes, swans, ducks, geese, and a variety of aquatic birds. Amongst game birds the partridge, the black grouse or heath-fowl, and the red grouse or moorfowl are the most common, the first named increasing with extending cultivation, whilst the latter two are confined to the wild moorlands of Northern England, Scotland, and Ireland. The ptarmigan, which had a wide range formerly, occurs now only in the wildest parts of Scotland and in the Hebrides. The pheasant, like most of the domesticated birds, is of foreign origin.

Birds of prey become scarcer every day, but the golden eagle still frequents the high mountain regions, whilst the sea eagle is common along the western shore, from the Shetland Islands as far as South Wales.

Frogs and toads abound in certain localities, but reptiles proper are very scarce, being confined to lizards, efts, harmless snakes, and the common viper, or adder, the latter alone being venomous. In Ireland there are no snakes.

The seas and rivers, as far as they are not polluted by the refuse of factories and towns, abound in fish, crustacea, and molluscs. Amongst sea fish the most highly valued are the cod, turbot, mackerel, herring, pilchard, sole, and haddock, whilst the rivers and lakes, more especially in Scotland and Ireland, yield salmon, trout, char, and other fish. English oysters were so greatly esteemed in antiquity that they were sent to Rome, and “natives” have lost none of their reputation at the present day.

INHABITANTS.

OF the earliest history of man as an inhabitant of the British Isles there exist only geological records, and these tend to prove that his first advent dates back to a time antecedent to the great glacial epoch,* but that he returned to more congenial lands as the glaciation proceeded. By degrees he adapted himself to the severity of the climate, and, like the Greenlander of our own time, lived in comparative comfort on the edges of glaciers and snow-fields. That he was a contemporary of the mammoth and other mammals now extinct is sufficiently proved by the discovery of his rude implements associated with the bones of these

* Ramsay, “Physical Geology and Geography of Great Britain.”

animals. The famous Wookey Hole, near Wells, yielded the bones of various carnivorous animals, including the hyena, the wolf, and the bear, as well as those of the mammoth, rhinoceros, reindeer, *Bos primigenius*, gigantic Irish deer, and horse, together with rudely shaped implements made of flint and burnt bones. Similar remains have been unearthed in other caves and in older valley gravels, the implements in these instances being of rude workmanship, such as are usually assigned to the palæolithic or old stone age. Far more frequent, however, has been the discovery of polished celts and other articles indicating a higher stage of civilisation. These relics of the neolithic age occur everywhere throughout the British Isles, from Caithness to Cornwall, and from the east coast of England to the west coast of Ireland. Even in the bleak Orkney and Shetland Islands, and all over the Inner and Outer Hebrides, they have been met with.* Neolithic man was associated with a mammalian fauna very different from that of the palæolithic age, its most characteristic members being dogs, horses, pigs, several breeds of oxen, the bison, the red deer, and the great Irish deer.

Still further and fuller evidence of the presence of prehistoric man is furnished by sepulchral barrows, cairns, and cromlechs, and by the remains of human habitations. The most interesting amongst these latter are the *crannoges*, so abundant in Ireland and Scotland. The first of these lake dwellings was discovered in 1839, in the small Lake of Lagore, near Dunshaughlin, in the county of Meath. Besides the bones of domestic animals, it yielded weapons and other articles made of stone, bone, wood, bronze, iron, and silver, thus proving that it must have been inhabited from the most remote to a comparatively recent period; and in reality some of these Irish lake dwellings served as places of refuge down to the middle of the seventeenth century. These *crannoges* are not constructed on piles over the water, like the lake dwellings of Switzerland, but are placed upon islands, in many instances artificial, and enclosed by a stockade of timber. A narrow causeway generally connected them with the land, and boats cut out of a single piece of oak have been found near them. The *barrows*, or artificial mounds of earth erected for sepulchral purposes, as well as the *cairns*, or heaps of stone piled up with the same objects, or as memorials, have furnished even more interesting information on the ancient inhabitants of the country. Many of them date back to prehistoric times, but others have been constructed since the occupation of the country by Romans and Saxons. The oldest barrows are of a longish shape; the skulls found in them are, with scarcely an exception, dolichocephalic; and most of the implements are of polished stone, or neolithic. Neither bronze nor iron weapons have been discovered in them. According to Huxley, people by whom these barrows, as well as most of the chambered gallery graves, were erected, were kinsmen of the Iberians and Aquitani.† They were a dark people, and the Silures, who inhabited South-western England and the Cassiterides, or Tin Islands, belonged to them. They are described by Greek writers as having curly hair and dark complexions, and as comparatively civilised in their

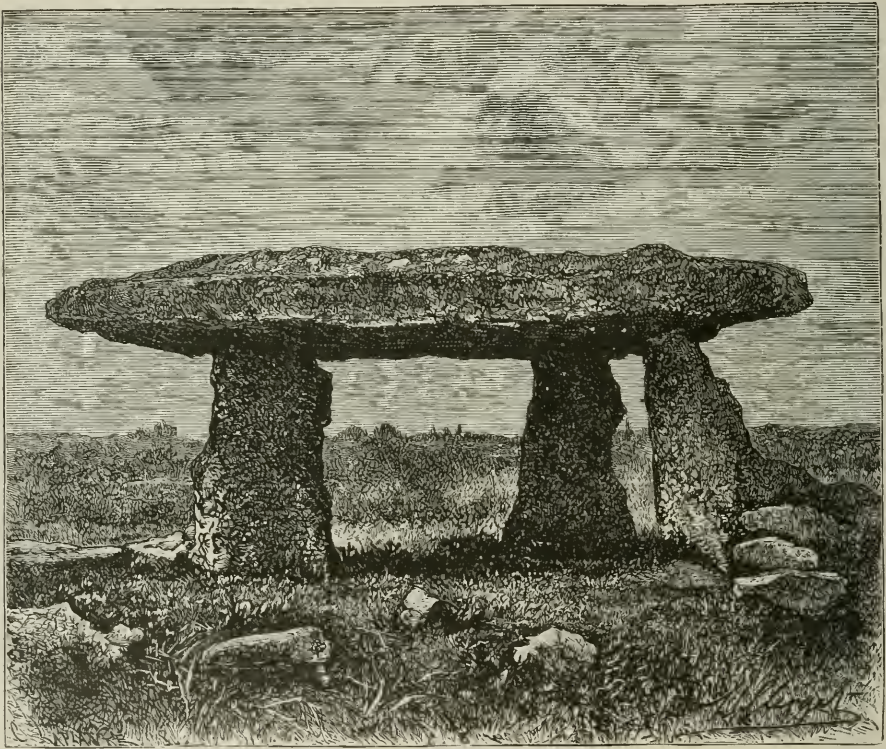
* James Geikie, "The Great Ice Age."

† "Critiques and Addresses," 1873.

habits. Of this dark race no trace exists at the present day, except perhaps in the black hair and dark eyes of many Welshmen.

Successive waves of Celtic invaders gradually dispossessed these earlier inhabitants of the most fertile districts, and drove them north and west into the hilly regions. The first to arrive were the forefathers of the Gaels, and to these succeeded the Cymri. These latter gradually spread over the whole of England and Scotland as far as the Tay, and perhaps even beyond that river, driving the Gaels into the more sterile mountainous parts, and into Ireland. In Western Wales the Gaels, or "Gwyddel," maintained their ground up to the sixth century, when the last remnants sought a refuge amongst their kinsmen in

Fig. 16.—THE "GIANT'S QUOIT" AT LANYON, NEAR PENZANCE.



Ireland; but long before that time the great Teutonic immigration, which thoroughly changed the character of the population of England, had commenced.

When Julius Cæsar landed in England, fifty-five years before the Christian era, he found the coast in the occupation of blue-eyed, fair-haired Belgæ, who tilled the land, kept cattle, and made use of copper and iron rings for money. The inland part, however, was inhabited by "those who, according to existing tradition, were the aborigines of the island." These "inland people," Julius Cæsar says in his "Commentaries," "for the most part do not sow corn, but live on milk and flesh, and are clothed in skins. They all stain themselves with woad, which makes them of a blue tinge, and gives them a fearful appearance in

battle; they also wear their hair long, and shave every part of the body except the head and the upper lip. Every ten or twelve of them have their wives in common, especially brothers with brothers, and parents with children; but if any children are born they are accounted the children of those by whom each maiden was first espoused." Druidism flourished among these Britons as vigorously as with their kinsmen in Gaul. Amongst these British tribes were Morinii, Rhemi, and Atrebatii, as in Northern France. The Atrebatii were more civilised than the others, and had grown wealthy through their agriculture and industry.

The Roman occupation, however great its influence upon the progress of civilisation, affected but little the ethnical composition of the population. When the great empire fell to pieces, and Britain became a prey to anarchy, the Teutonic tribes of Northern Europe, who had long harassed its coasts, obtained a permanent footing in it, exterminating or reducing to a state of servitude the inhabitants whom they found dwelling there, or driving them to the sterile hilly districts. Warlike Jutes established themselves on the Isle of Thanet, in Kent, on the Isle of Wight, and on the coast of Hampshire; Saxons, with kindred tribes from Lower Germany, amongst whom the Friesians were the most prominent, occupied the basin of the Thames as well as the coasts of Essex and Sussex, still named after them; Angles, from the southern part of the Cimbrian peninsula, drove the Britons out of Central and Northern England. Later still an invasion of Danes and Northmen took place, and last of all William the Conqueror, with his fifty thousand French-speaking Normans, landed. No warlike invasion has taken place since then, but the population of the British Islands, already of such diverse origin, has repeatedly received fresh accessions of kindred or alien immigrants, and is receiving them annually, down to the present day. Religious persecution drove thousands of Flemings and Frenchmen to the shores of England, where they founded new industries, and in course of time amalgamated with the people. Palatines settled in the country when driven from their homes by the ruthless hosts of Louis XIV., and political refugees of all nations have at all times found a secure asylum on British soil. The stock of the actual population of the British Isles consists of northern types, viz. Celtic Britons and Teutonic Saxons, Northmen, and kindred tribes. It is not in accordance with facts to comprehend so mixed a people under the general term of Anglo-Saxons, as if it had had no other ancestors than the Germanic invaders who came from the banks of the Elbe and the Cimbrian peninsula. The name of Anglo-Celts, suggested by Huxley and other anthropologists, is the only one by which the people of England, no less than of the British Isles collectively, can be appropriately designated. In ordinary conversation, however, names are indifferently made use of which, far from being synonyms, convey contradictory notions as to the origin of the population. We speak of "Great Britain" as distinguished from "Little Britain," or Bretagne, as if that island were still in the sole occupation of Celtic Britons. On the other hand, the name of "England," or "Land of the Angles," is geographically applied to the whole

southern portion of Great Britain, and frequently used in a still more comprehensive sense.

But although the Anglo-Celtic population of the British Islands is upon the whole a mixed one, it is not difficult to point out certain districts where one or other of its constituent elements preponderates. In Western Ireland, in the Highlands of Scotland, in the Cumbrian mountains, in Wales, and in Cornwall the old Celtic type still maintains its ground; Angles, Saxons, Friesians, and Jutes are most numerous along the east coast, upon which their ancestors first effected a landing, and in the adjoining districts. The Danish element is strongly represented in the whole of the region, embracing fifteen counties, from Hertford to Durham, which was formerly known as the district of the "Danelagh," or Danish Law. The Northmen preponderate in the northern parts of Great Britain. Firmly established on the Orkneys, they founded colonies on the coasts of Scotland, Cumberland, and Northumberland. As to the ancient masters and settlers of the country, their memory survives in the names of rivers and mountains, towns and villages.* Nearly all the river names are Celtic, being derived from four words (*afon*, *don*, *uisge*, and *dwr*), all meaning "river" or "water."

The British Celts occupy the most remote districts of the British Isles,† whilst the immigrants of Teutonic race have established themselves nearest to the continent. This geographical distribution of the two races has exercised a most potent influence upon the history of Europe. Great Britain has been likened by Michelet‡ to a huge ship which turns her prow towards France; and this prow is occupied by men of Teutonic origin, whilst the Celts are kept in the background, in remote peninsulas and in Ireland. The contrast between the two nations dwelling on either side of the Channel is abrupt, and without ethnical transition. France formerly stood face to face with her enemy, whilst her natural allies of kindred race were far away, and often beyond reach, and never were wars waged with greater fury than those between the Saxon islander and the continental Gaul. But, fortunately for mankind, this ancient hatred has died out, and a feeling of mutual respect and friendship now animates the two neighbouring nations.

Happily for England, her intercourse with the remainder of the world has not always been of a warlike nature. The British Isles are rich in deep and spacious harbours—far more so than France; and in comparing the coasts of the two countries we may even say that "Father Ocean has a bias for England." England, besides, enjoys the advantage of higher tides, which enable vessels of

* Kemble, "The Saxons in England;" Wright, "The Celt, the Roman, and the Saxon;" Skene, "Celtic Scotland."

† Number of Celtic-speaking persons throughout the British Isles:—

Irish Gaels	867,600
Manxmen	12,500
Scotch Gaels	309,300
Cymri (Welsh)	996,500
Total	2,185,900

Of the above about 457,000 cannot speak English. (E. G. Ravenstein, *Journal of the Statistical Society*, 1879.)

‡ "Histoire de France," ii.

considerable burden to penetrate the estuaries of her rivers, almost to the heart of the country. As long as the British Isles were thinly peopled, and produced sufficient to supply the wants of the inhabitants, foreign commerce, as might have been expected, did not attain considerable proportions. Yet London, even before the arrival of the Romans, engaged in maritime commerce, and during the Middle Ages, whenever its citizens had a respite from civil commotions and foreign wars, they resumed their commercial activity. The ancestors of many of the inhabitants of the coast were hardy Northmen, and from them they inherited a love of maritime adventure, and an eager longing to struggle with waves and tempests. Yet it was not they who took the lead in those memorable discoveries which brought the

Fig. 17.—GAELS AND CYMRI.



countries of the world nearer to each other, and converted a space without limits into a simple globe, easily encompassed by man. The glory of having discovered the ocean routes to the Indies and the Pacific was fated to be won by the mariners of the more civilised nations of Southern Europe. But the seamen of England quickly learnt to find out new ocean routes for themselves, and soon their audacity and endurance placed them at the head of all their rivals. The expeditions which they sent forth to the arctic regions to discover a north-west passage to China, and which they still continue to equip, no longer for the sake of commerce, but out of a pure love for science, are amongst the most heroic enterprises recorded by history. But where one English vessel ventured into unknown seas, hundreds

followed the routes already discovered, establishing commercial relations with distant countries, destroying the factories of rival traders, and landing troops and colonists. By degrees the admirable geographical position of England with reference to Europe, America, and the whole of the habitable world revealed itself. Its situation at the western extremity of the European continent marked it out as the natural intermediary of the commerce carried on between the Baltic, Germany, Netherlands, and France on the one hand, and America on the other ; and whilst the trade winds and the equatorial current sped the progress of vessels sailing to the West Indies, the gulf-stream facilitated their return to the shores of Europe. London, as was first pointed out by Sir John Herschel, occupies very nearly the geometrical centre of that hemisphere which embraces the greater part of the land, and consequently no city is more favourably situated for attracting the world's maritime commerce.* This magnificent geographical position in a large measure accounts for the commercial preponderance of England. English commerce grew apace, but the English colonists established in distant countries never relaxed in their efforts to extend it still farther. No colonising nation, the Dutch alone excepted, has brought greater zeal and more sustained effort to bear upon the work it had taken in hand ; and thus a small European people, numbering hardly 5,000,000 souls at the time it entered upon its career of conquest, has gradually extended its dominions, until they embrace the sixth part of the habitable globe, and close upon 300,000,000 human beings. In addition to this there are wide territories in India, in Arabia, in Africa, and elsewhere, which do not officially form part of the British Empire, but where English influence is nevertheless paramount, and the request of an English consul is tantamount to a command. Travellers who explore distant countries contribute in no small degree to the extension of British influence, for whether they wish it or not, they are looked upon as the representatives of British power, and the precursors of conquering armies. There is not a country in the world where these British travellers and explorers are not to be met with, either simply in search of adventure, or anxious to do honour to the country of their birth by their discoveries. Whilst artisans and labourers expatriate themselves, because in another hemisphere they hope to acquire the comforts and independence they lack at home, there are also thousands of the younger sons of the aristocracy whom no responsibilities tie to the land of their birth, and who are at all times ready to exchange their place of abode. Deprived of a share in the paternal acres, they, like modern Mamertines, take the whole earth for their domain, and turn their backs upon the land which dispenses with their services.

And whilst mariners, colonists, and explorers discover and occupy new lands beyond the ocean, the miners who remain at home explore the riches of an underground world. British ships bring cotton, rice, and spices ; the miners raise coal from the bowels of the earth, and it would be difficult to tell whose share of work is most contributive towards an increase of British power. Huge industrial towns

* The hemisphere having London for its centre embraces 16-17ths of the land, that of which New Zealand is the centre only 1-17th.

have arisen where formerly there stood only agricultural villages and walled burghs: a manufacturing district of wide extent in the north serves as a counterpoise to the agricultural region of Southern England. Birmingham, Sheffield, Manchester, Leeds, and all the rising towns around them, are of spontaneous growth, and not the creations of an all-directing capital. They lead their own life, and each of them has become a centre of thought, independent of London. The great industrial movement of our age has originated in these towns, and spread thence over Europe and the whole world. We owe to them the application of new processes of manufacture and the improvements of machinery, for the factories of Lancashire and Yorkshire have served as patterns to similar establishments in other parts of the world. English hydraulic engineers, who were content formerly to follow in the wake of their Dutch colleagues, have struck out paths of their own,

Fig. 18.—THE BRITISH COLONIES.



and we have seen that even in the Netherlands there exist now large works of canalisation which they have carried out.

In the manufacturing districts of Great Britain smoke mingles so largely with the atmosphere as to have wholly changed the aspect of nature. There are towns where the heavens are permanently obscured by smoke, where the houses, including even public buildings, most sumptuously furnished in the interior, are covered with soot, and a shower of "blacks" is for ever descending upon the trees and lawns. The factories have thus, as it were, changed the climate; but their influence upon the social condition of the people has been even greater. They have, more than any other agency of contemporaneous civilisation, influenced the mode of life of the people, and laid the seeds of a great revolution. England, before all other nations, found itself face to face with the formidable problem presented by the modern proletariat. It is there that the great masses are involved in the

fluctuations of commerce; there that disputes between masters and workmen have assumed the largest proportions, and the workmen's trades unions dispose of the most considerable forces. Not an event takes place in Europe but its effects are felt in the workshops of England. Not a change can be made in the wages of the English factory hands without the labour markets of the whole world immediately feeling the effect.

In addition to the direct influence which England brings so powerfully to bear upon the destinies of other nations, it exerts, through its distant colonies, an indirect influence of the utmost importance. Unhappily English colonisation has not always proved a benefit to the aboriginal populations whose countries have been occupied. Where the English colonist sets his foot, the days of nomadic tribes of fishermen and hunters are numbered, and even agricultural tribes do not always survive contact with the civilisation forced upon them. True there still exist nations beyond the pale of Europe at once too numerous and too far advanced in civilisation to make us fear their extermination; but the white man has nevertheless violently intervened in their history, and none more decisively than the Englishman and his American kinsman. It was they who forced the people of Japan to take part in the movement of Western civilisation, and broke down the barriers behind which China had entrenched herself. The vast multitude inhabiting the peninsula of India obey the orders of the Empress-Queen seated upon the banks of the Thames. A deep gulf still separates the haughty Englishman from the timorous Hindu, and the time when the two will be able fully to enter into each other's thoughts is probably very remote. Yet the presence of the European conqueror has wrought greater changes in the material and social conditions of the population of India than the twenty centuries which preceded his reign. Railways, schools, and printing-presses have totally overthrown this ancient world, and a new life is penetrating a society formerly strictly regulated by caste and tradition. If ever the peoples of that beautiful peninsula should learn to govern themselves, and to live side by side in peace and the enjoyment of liberty, the first impulses will have come from England.

The increasing extension of the English language in civilised and barbarous nations cannot fail to spread English ideas amongst men of various races. M. Alphonse de Candolle, in a well-known book,* develops an idea already expressed before him by various authors, and insists upon the importance which English must, in course of time, acquire as a universal language. It is spoken not merely in the British Isles, but also in America, in Australia, in every centre of commerce, and even in the most remote islands of the Pacific. In reality it is the mother tongue of some 77,000,000 of human beings; † but if we include

* "Histoire des Sciences et des Savants depuis deux siècles."

† Distribution of persons whose mother tongue is English:—

In Europe	34,000,000
In the United States	35,000,000
In British North America	3,300,000
In Australasia	2,750,000
In South Africa	300,000
In other English Colonies	1,620,000
	<u>76,970,000</u>

men of various races, Europeans and Americans, Africans, Chinese, Hindus, and Malays, who understand English, and make more or less use of it, it will be found that it has already become a vehicle for thought to at least 100,000,000 individuals. If, too, we bear in mind the rapid extension of the English-speaking nations, and the ever-increasing importance of commercial interests, we may well foresee a time when double this number will transact their business in the language now spoken in the ports of Liverpool, New York, Sydney, and Calcutta. English is far more highly favoured in this expansion than either the French, Russian, or even the Spanish language, for there exist three great centres whence it spreads over the entire world. The United States and Canada contribute as powerfully to its extension as the mother country; from Australia it gradually spreads over the islands of the Pacific; whilst in South Africa it gains ground amongst boers, Kaffirs, and other natives of that continent. England and the English may almost be said to lay siege to the habitable world. The Spanish language has only two centres of dispersion, the Iberian peninsula and South America, and up till now, owing to the commercial inferiority of the nations by whom it is spoken, it has exhibited but little power of expansion. As to French, though highly appreciated by all nations of culture as a common means of communication in matters of science and art, and in social and national intercourse, it has but one centre whence it can spread, viz. France and Algeria, for French Canada and the Antilles are too unimportant to make their influence felt afar.

English is thus without a rival in the rapidity with which it extends its domain. It possesses, moreover, the advantage of belonging at one and the same time to two distinct groups of languages. Germanic in its origin, spirit, and construction, it also belongs to the Latin group, from which it has borrowed numerous words relating to art, science, politics, and the ordinary affairs of life. It is possible to meet with papers of a technical nature in which only the auxiliary verbs, prepositions, and conjunctions are of the old Anglo-Saxon stock. But good writers, according to the subject they deal with, understand how to blend these words of diverse origin, as the weaver knows how to arrange his threads when reproducing a coloured pattern. Whilst French is easily acquired only by the Latin nations of Southern Europe, English, owing to its double origin, presents no greater difficulties to the Portuguese than to the Swede, to the Romanian than the German. It is absolutely foreign only to the Slavs, who, in their intercourse with the inhabitants of Western Europe, mostly make use of German or French; but they, too, have recently paid more attention to English, which the facility with which they acquire foreign languages enables them to master quickly.

Besides the advantages derived from the ubiquity of the English-speaking peoples, and the large number of synonyms—many words of Anglo-Saxon origin having been supplemented by words from the Latin conveying a similar idea—English possesses precious qualities as a universal language. It is distinguished, above all, by the simplicity of its grammar and its expressive conciseness. No other language has been mutilated to the same extent; but has not this phonetic change emancipated thought and favoured the solution of abstract ques-

tions? * English writers consequently congratulate themselves upon having delivered their language from a "superannuated system of flexions." They are by no means sorry that in some respects it should resemble the monosyllabic, and in others the agglutinate languages. † The want of conciseness is felt so much that in ordinary conversation a long word is sometimes reduced to a single syllable, and initial letters are substituted for proper names and titles. "What other language is there so expressive and concise," says Ampère, "as that in which *dog* means 'to follow some one's track like a dog in pursuit of its prey,' or where, in familiar language, *cut* conveys the meaning of 'appearing not to know some one in order to break off an undesirable acquaintanceship?'" Poetical language is hardly ever capable of being translated, and this applies more especially to English. The language of Shakspeare, Tennyson, and Byron is rich, powerful, vigorously precise, and picturesque to such a degree that the task of adequately conveying its meaning in other tongues is almost a hopeless one. All its vigour vanishes in the process of translation, and there remains but a body without a framework.

The ordinary speech of an Englishman, however, strikes a foreigner as being anything but agreeable. He misses the distinct pronunciation of vowels, and finds it monotonous, abounding in sibilants and even "explosives." There is none of the sonorousness of the Southern languages, or of the clearness and pure pronunciation of the French. No other language presents similar anomalies in its orthography, which etymology and a respect for tradition have caused to be adhered to, although in many instances it no longer corresponds with the language as it is spoken. Will the excess of the evil bring about its cure, as several men of thought and intelligence expect? ‡ At all events a reform of English spelling would facilitate the acquisition of the language by foreigners, and improve its chances of becoming one day the language of the entire world. There are bilingual countries even now where the children at school are taught both languages, in order that they may converse with all their fellow-countrymen. Would it be impossible to introduce this system into every country of the world, and to teach an international language, such as English, in addition to the mother tongue, embodying the national genius and its aspirations?

In the meantime civilisation in an English guise is rapidly gaining ground in every part of the world, and mainly through the agency of its language. What then, we may ask, is the ideal type of the powerful nation whose sons, scattered broadcast over the face of the earth, essay to remodel mankind on the pattern of Old England? What moral influence has it already exercised upon other men, and what good or evil fruit is it likely to bear in the future?

The Englishman combines in a vigorous individuality the characteristics of the Celt, the German, and the Dane. He is, above all others, distinguished for strength of will, energy, and tenacity. He has something of the nature of the mastiff, which would rather be cut to pieces than let go his hold. Military history abounds in

* Michel Bréal, "Mélanges de Mythologie et de Linguistique."

† Sweet, "Language and Thought." Élie Reclus, "Ethnography" ("Encyclopædia Britannica").

‡ Max Müller, "On Spelling" (*Fortnightly Review*, vol. xix. New Series).

examples of the steadiness exhibited by English soldiers in the field, their firmness in battle, and unshaken fortitude under defeat. Even the coarse boxing-matches now prohibited by law, but until recently admired by the multitude, bear witness to the possession of an exuberancy of spirit. But though the Englishman loves fighting for fighting's sake, he loves it still more because of the advantages that may be derived from it. A barren victory, in mere satisfaction of his vanity, does not content him, for he always aims at conquest. It has long been matter of observation that he thinks more of the tangible advantages resulting from a success than his old rival on the other side of the Channel.* As depicted by himself, the typical Englishman appears under the guise of "John Bull," a plain, irascible, but good-natured old fellow, without taste,† but abounding in strong common sense, and fond of his purse and stomach. "Jacques Bonhomme," by a remarkable contrast, is represented as being lean, poor, and sad, whilst "John Bull" is fat, rich, and jovial.

British energy, when exhibited for the personal advantage of individuals struggling for existence, is often apt to degenerate into ferocity. An Englishman desirous of making his way through a crowd pushes aside without ceremony those who obstruct his progress. The independence of which he is so proud is often nothing but an absolute want of sympathy for others.‡ If he yields to his natural inclinations, he becomes hard, cold, and egotistic. Even in the presence of strangers he frequently takes up the attitude of an enemy. His early national history tells us of frightful cruelties committed in cold blood, and not, as in other countries, in the exaltation of fanaticism or revenge. Abroad, whether he make his appearance as an exacting and distant master, as a merchant eager to transact business, or merely as a curious traveller enveloped in an atmosphere of frigidity, he inspires no feelings of love. He is respected, and sometimes even admired, but occasionally it happens that he is hated. He knows it, and it does not trouble him. The islander is an island unto himself.§ He never changes, and his impassive face does not reflect his inner life. It is not that he is without feelings of affection: quite the contrary. If he says little, and only after due reflection, it is because to him every word is the forerunner of an action.|| He loves devotedly, and forms fast friendships, but represses his passions, and by doing so renders them all the more potent.

There is not, perhaps, a people in existence amongst whom the changes resulting from social development have been more considerable than in the English. No difference could be greater than that between the ferocious Saxon and Dane and the modern English gentleman, who is discreet, reserved in his speech, kindly in his manners, obliging, affable, and generous. Yet this great change has taken place almost imperceptibly, and by slow degrees. The same man, now so remarkable in many respects as a product of civilisation, was a

* Alph. Esquiros, "L'Angleterre et la vie anglaise."

† Washington Irving, "An American in London."

‡ Bulwer, "England and the English."

§ Emerson, "English Traits."

|| Auguste Laugel, "De l'aristocratie anglaise" (*Revue des Deux-Mondes*, 1872).

thousand years ago a brutish churl, whose deeds of violence have been placed on record in ancient chronicles. The wonderful transformation is the result of the patient and unremitting labour of years. No great political revolution has occurred in the country since the seventeenth century, and it is by a process of slow evolution that the English have thus modified their character. None of the vestiges of the past have wholly disappeared. In no other country can the progress of architecture since the days of Saxons and Normans be studied with greater advantage. Cromwell, the great leveller, razed many castles and burnt numerous abbeys; but from Arundel to Carnarvon, from Salisbury to York, hundreds of these mediæval structures, both feudal and monastic, survive to the present day, and all the world is engaged in their restoration. Ancient customs, meaningless

Fig. 19.—ARUNDEL CASTLE : INTERIOR QUADRANGLE.



to the general public, are still religiously observed. Terms in Norman French, no longer intelligible on the other side of the Channel, are still employed in legal documents and on certain occasions of state. Mediæval costumes are worn by the custodians of certain royal buildings, and the children in some of the foundation schools are still dressed in the style in vogue at the time of the original founders. Leases are granted for ninety-nine and even for nine hundred and ninety-nine years, as if the lessor could insure the existence of his family for all time to come. Testamentary dispositions made in the Middle Ages remain in force to the present day. Even in London there are streets which are occasionally closed on one day in the year, by having barriers placed across them, in order to show that the owner of the land, although he allows the public to use them, does not relinquish his claim to property in the soil. "Beating the bounds" is

a procedure still observed in certain parts of England on Holy Thursday, or Ascension Day, and consists in perambulating the parish boundaries, the boys of the parish school striking the boundary marks with peeled willow wands. The singular expedient of whipping the boys themselves on the spot, in order to more firmly fix the lay of the boundaries in their memories, appears, however, to have been relinquished. "Merry Christmas" plays an important part in the life of Englishmen, and for that festive occasion every good housewife attends to the preparation of the traditional fare. On that happy day all Englishmen, from one end of the world to the other, from London to the antipodes, and from the icy North to the burning deserts of Africa, feel in communion with each other. The explorer, if obliged, from the want of porters, to part with some of his most precious stores, nevertheless holds fast to his *plum pudding*, and, when eating it, exchanges good wishes with his friends at home.*

In no other country of the world are juridical precedents looked up to with greater respect than in England, and the antiquated legal procedure, that "monster plague of the country," to use an expression of Lord Brougham, is only too often in conflict with our ideas of justice. The judges and barristers still wear wigs, and enjoy an amount of consideration which is not extended to their colleagues on the continent. The judges attending the assizes are looked upon as the direct representatives of the sovereign, and take precedence before all other Englishmen, including even princes of the blood royal.†

The Englishman, patient and strong, never in a hurry, but at all times ready to act, is not ordinarily possessed of those high ambitions which sway his neighbour on the other side of the Channel. His horizon is more limited, and he conceives no vast general plans, being content with effecting changes by degrees and in detail. He only attends to one thing at a time, but does it thoroughly. His eye is deep-set, and he looks straight before him. He is even said to wear "blinkers," in order that objects lying outside his path may not distract his attention.‡ Those vast synthetic views and generalisations, which elsewhere divide nations into parties strongly opposed to each other, can hardly be said to exist amongst Englishmen, taking them as a whole. They concern themselves, above all things, with facts, and successively analyze every question as it turns up. The principle of a division of labour is strictly carried out, and those who study have not so much in view the advancement of learning as the practical requirements of their future avocation. This want of a wide comprehension often renders Englishmen intolerant, for they cannot understand how other people can think differently from themselves. It is only rarely that parliamentary speakers enunciate a principle; they are content to discuss in commonplace language the advantages and disadvantages of the thing proposed, adducing facts in support of their views. They leave "ideas" to others, and prefer large battalions and strong redoubts to the most ingenious plans of battle or the inspiration of the moment.§

* Cameron, "Across Africa."

† N. Hawthorne, "English Note-Books."

‡ Emerson, "English Traits."

§ Henri Heine, "De l'Angleterre." Emerson, "English Traits."

As men of common sense they never omit to associate themselves with those of their countrymen who hold views similar to their own, and the number of societies established for every conceivable object is exceedingly large. In France associations of this kind are less influential, and they generally devote their energies to vast and indefinite projects, whilst the numberless "leagues," "unions," and other societies of England have always some definite object in view. Political parties and religious bodies do not form distinct and hostile camps, as on the continent. The transitions between one pole of society and the other are innumerable, for these hundreds of associations, whatever their object, recruit their members from the whole nation, wherever a sympathetic voice responds to them. It thus happens that an Englishman may find himself associated, for a particular object, with men belonging to the most diverse political parties. No one thinks of blaming him, or expects him to sacrifice his independent opinions.

It is now four centuries since Froissart said that Englishmen took their pleasures sadly, although, at the time this author wrote, "Merry" was the epithet which the natives of the country prefixed to the name of England. The crowds which throng the streets of the towns of Great Britain in our own days certainly are anything but gay. On the contrary, these preoccupied, silent men, clad in sombre garments, are almost lugubrious in appearance. The climate, with its fogs, its rains, and its leaden skies, may account, to some extent, for the gloomy faces we meet with; but there are other causes at work calculated to stamp a character of melancholy upon the countenances of vast numbers. In none of the Latin countries of Europe is social inequality so great as in England. It has created a gulf separating the rich from the poor, the landed proprietor from the tillers of the soil, the master from the servant—nay, even, until recently, the undergraduate of noble birth from his fellow-commoner. Veneration of the aristocracy has passed into the blood of the people, and in some provincial towns crowds immediately collect whenever a nobleman's carriage stops in the streets.* The moral malady, which Bulwer designates as "aristocratic contagion," has corrupted the whole nation, from the court to the village. Every one aspires to become "respectable;" that is, to appear wealthier than he is. Society is thus divided into innumerable classes, all busily employed removing the barriers which separate them from their superiors, but equally intent upon maintaining those which shut out the class next beneath it. Not a provincial town but the haberdasher's wife declines to associate with the wife of the grocer, as being beneath her.† Nor has the Puritanical reaction ceased yet, which consisted, not in a maceration of the body, but in stifling free inquiry, and curtailing the delight yielded by a cultivation of art. The actual inferiority of the British stage may probably be due to this Puritanical influence, for power of observation or fancy is not lacking for comedy, whilst the drama boasts of the models furnished by Shakspeare and his successors. But perhaps we ought also to take into account that England has enjoyed internal peace for more than two centuries; it lives no longer, like France, in the midst of a great

* N. Hawthorne, "English Note-Books."

† Edward Lytton Bulwer, "England and the English."

drama, the scenes of which succeed each other from generation to generation.* In painting, more especially, England, until recently, was inferior to her neighbours. At the time of the revolution in the seventeenth century Parliament ordered the destruction or sale of the most precious Italian masterpieces, and even now it will not allow the paintings belonging to the nation to be looked at on Sunday. Sunday is, indeed, a great institution of the country, more especially in Scotland, where all animation then appears to be suspended. In 1844, when the King of Saxony desired to embark on a Sunday, after he had been fêted for a whole week, he was obliged to proceed very cautiously, in order not to expose himself to the insults of an Edinburgh mob,† and quite recently the Queen herself was taken to task for venturing to cross a ferry on the Sabbath-day.

By a curious contrast, which may also be observed in Holland, the Anglo-Saxon, whenever the moment has come for putting aside, like a borrowed garment, the seriousness of every-day life, suddenly passes from a state of apathy, or even apparent despondency, into one of boisterous hilarity. The enthusiasm exhibited at horse and boat races, and on other occasions, is quite unintelligible to a Frenchman or Italian, who looks upon it as akin to folly. On holidays everybody spends money without counting the cost, and often it is the wife who is most lavish, and least thoughtful of the future.

A love of nature somewhat counteracts the influences of the monotonous life passed in counting-houses and factories. Though no adepts in the arrangement of lines or blending of colours, Englishmen love open fields, fine trees, and woods; they are fond, too, of the sea, and enjoy being in the midst of the agitated waves. This love of nature in its grand and unadulterated aspects is reflected throughout the country in the appearance of the land, which, though carefully cultivated, has not been disfigured by the process.‡ Quickset hedges separate meadows and fields, while masses of trees afford shade near the dwelling-houses, whose red bricks are often half hidden by climbing vines or ivy. Humble cottages on the roadside charm by their air of peaceful beauty. The mansions of the wealthy stand in the midst of wide parks, where oaks, beeches, and ash-trees mingle with the conifers of Europe, the Himalayas, and Oregon; and these mansions, moreover, are often replete with treasures of art, unfortunately open only to the inspection of privileged visitors. Even under the smoke-laden atmosphere of the manufacturing districts the country in many places retains its verdure, its copses of wood, its peaceful and smiling aspect, for the manufacturers, as a rule, take much delight in agriculture and gardening. The foliage of their copses hides the chimney of the neighbouring factory, and the rivulet, which only a short distance lower down turns the wheel of a mill, winds peaceably between grass-clad slopes. But a turn of the road, and the scene changes abruptly; we find ourselves suddenly transported into a region of clatter and activity.

The love of nature, joined to that of danger, has rendered Englishmen

* Alfred Dumesnil, "Notes Manuscrites."

† Carus, "England und Schottland im Jahre 1844."

‡ N. Hawthorne, "English Note-Books."

famous as climbers and explorers of mountains. Nearly a century and a half has passed by since Mont Blanc was "discovered," as it were, by Pococke and Windham. Englishmen were not the first to climb this giant amongst European mountains, but next to Saussure they have most frequently scaled the summits of the peaks of Savoy and Switzerland, far surpassing in intrepidity the natives of these countries. It is they who have most assiduously studied the phenomena of the Mer de Glace, and of its surrounding snow-fields, and who were the first to unravel the topography of the little-known mountain groups of the Pelvoux, Grand Paradis, and Viso. It was they, too, who first founded an Alpine Club, which has become the parent of similar societies in other parts of Europe, and even of India, at the foot of the Himalayas.

A loving intimacy with nature has undoubtedly helped Englishmen in appreciating and breeding to perfection the various kinds of domestic animals. They do not confine themselves merely to improve the breeds, in order that they may yield more meat or better wool, and thus enhance the pecuniary profits to be derived from them, for they seek also to satisfy their æsthetic feelings by rendering them more shapely. Passionately fond of horses and dogs, they have succeeded, by judicious crossings, unflagging attention, and a course of training persevered in for generations, in producing new varieties, and transmitting the qualities in which they excel. An English breeder has almost the power of endowing the animal he breeds with strength, agility, or beauty. Even before it is born he ventures to predict its shape, its gait, the form of its head, and the colour of its skin. English horticulturists, too, have created thousands of new varieties of plants, and they reproduce in their hothouses the climate best suited to each species.

But if England is the country where the breeding of our various domestic animals is carried on with the greatest success, it is no less the country where the physical education of youth is conducted most intelligently, and with the greatest respect for the nature of the child, so that it may gain in strength and beauty. There are few English babies not charming to look upon. Poverty unfortunately disfigures the features of many early in life, but amongst those privileged by fortune how many are there not who amply fulfil the promises they held out in early childhood! Observations made at Harrow and Eton, as well as at the Universities of Oxford and Cambridge, during a period of fifty years, prove conclusively that the young men of modern England are superior to their forefathers in strength and agility. Thanks to a greater attention to the laws of hygiene, the growing generation is physically superior to the generations which preceded it. A cricket match is at all times a pleasant sight. These tall, lithe youths, with muscular arms, dressed in light attire, and surrounded by thousands of spectators keenly interested in their efforts, do they not remind us of the heroes of the Olympian games? Different surroundings, and perhaps a little more personal grace, alone are wanting to weave around them a charm of poetry such as enveloped the athletes of ancient Hellas. But where is the azure sky, where are the marble halls and divinely shaped statues which surrounded the ancient

arenas, not to speak of the prestige conferred by a past of two thousand years? Still these young athletes of England do not yield to those of ancient Greece in the courage, endurance, and earnestness with which they engage in their sports. Their education, which unfortunately does not always tend to a proper balance between mental and physical culture, undoubtedly braces the muscles, renders the glance more calm, and develops energy. Thanks to this course of discipline, men thus trained learn to depend upon themselves on every occasion. They brave disease, fatigue, and danger; dread neither high winds, cold, nor heat; and though left alone on the ocean or in the desert, are inflexible in the attainment of their purpose, regretting neither parents, friends, nor the easy life of large towns, as long as their work is unaccomplished. Conscious of their strength, they despise cunning, that resource of the feeble; they boldly speak the truth, even to their own detriment.

England, of all civilised countries, is the one where the number of truly conscientious men, who guide their conduct by rules which they consider to be just and honourable, is the largest. But in a country where personal dignity and a love of truth are held in such high respect, it is only natural that hypocrites should be numerous. The number of those who assume a virtue, though they have it not, is undoubtedly large, but by this very act they do homage to the self-respect which is the true characteristic of an Englishman, and this self-respect has been more conducive to the upbuilding of British power than all the advantages derived from a flourishing industry and extensive commerce.





CHAPTER II.

WALES AND MONMOUTHSHIRE.

GENERAL FEATURES.



WALES, with the county of Monmouthshire, forms a well-marked geographical division of Great Britain, distinguished at once by its mountainous character, its ancient rocks, and the origin of a vast majority of its inhabitants. Its shores are washed on the north by the Irish Sea as far as the mouth of the Dee, on the west by St. George's Channel, and on the south by the Bristol Channel, whilst on the east the country slopes down to the vale of the Severn, the hills lying to the west of that river approximately forming its boundary on that side. Wales, compared with the remainder of Great Britain, is but of small extent,* for it merely consists of a two-horned peninsula jutting out westward; but within its borders rise the loftiest mountains met with to the south of the Scotch Grampians. This mountain land, distinguished rather for its varied aspects, its wild yet picturesque valleys, its rich verdure, its lakes and sparkling rivulets, than for the boldness of its summits, is the most ancient soil of Southern Britain. Long before England had emerged above the sea, the Laurentian, Silurian, and Cambrian rocks of Wales rose as islands in the midst of the ocean. They are the vestiges of a Britain more ancient than that now known to us as England and Scotland. And those who people this ancient soil are distinguished from the other inhabitants by the antiquity of their origin; for they are the descendants of the aborigines of the country, and can look upon Saxons, Jutes, Danes, and Normans as comparatively recent intruders.

The mountains of Wales do not form a continuous range, or a regular succession of ranges, but rather rise in distinct groups, separated by low passes, and spreading out sometimes into elevated table-lands intersected by deep and fertile valleys. The principal amongst these groups is that which occupies the whole of Carnarvon, and within which rises the monarch of the Welsh mountains, Snowdon,† thus named on account of the snow which remains on its summit for

* Area, 7,957 square miles; population (1861) 1,286,413—(1871) 1,412,583.

† By the Welsh it is called Eryri, which some translate "Eagle's Rock," others "Snowy Mountain."

BRITISH ISLES

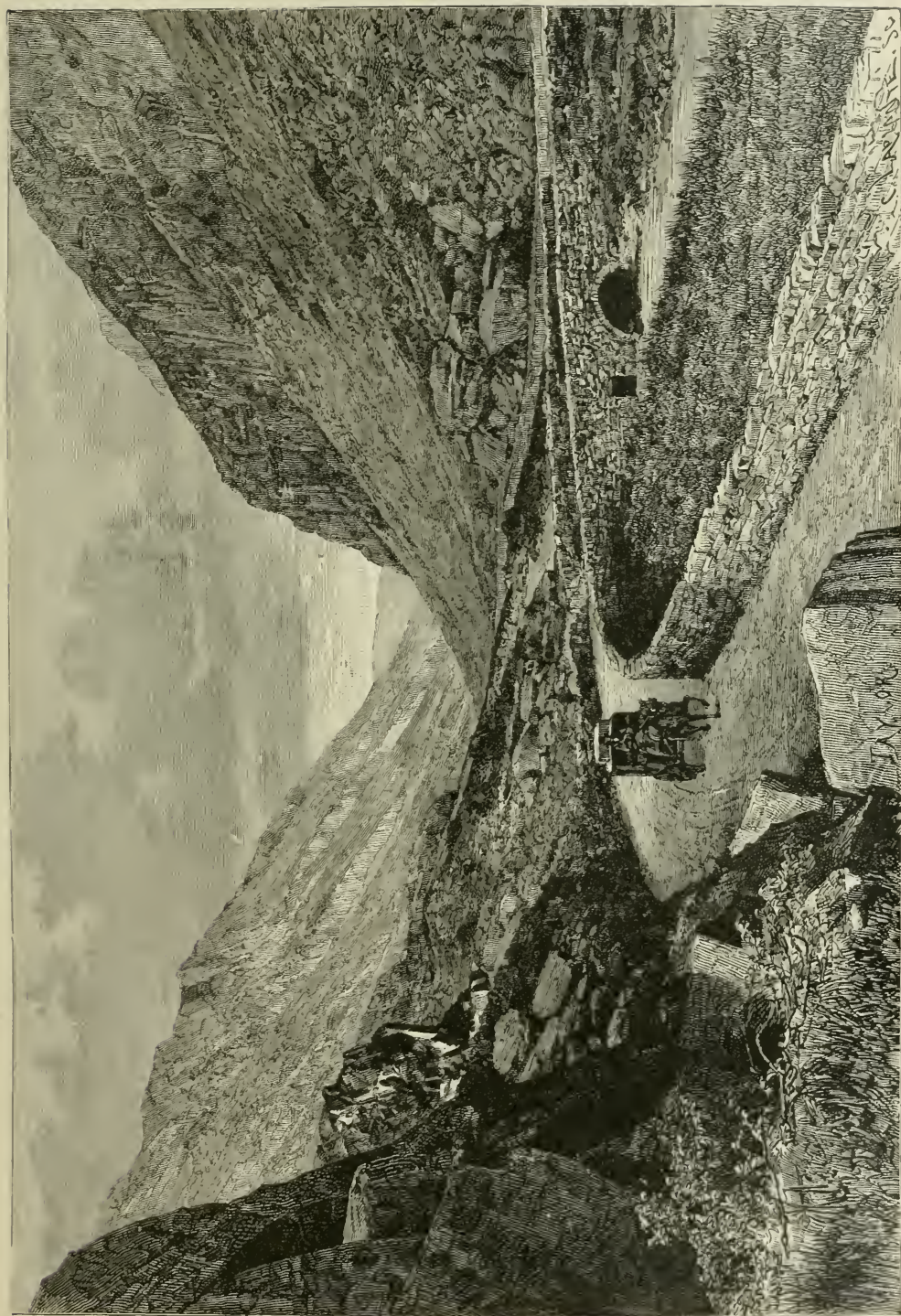


five or six months of the year. Though only 3,590 feet in height, this mountain impresses the beholder by the boldness with which it rises above all surrounding heights, revealing the whole of its slopes, from their base to the peaked summit called Y Wyddfa, or the "Place of Presence." The prospect to be enjoyed from this mass of slate pierced by porphyritic rocks, rising close to the sea, is most magnificent, and extends over a vast horizon of lower hills, valleys, lakes, promontories, and inlets of the sea. On a clear day the eye commands not only a vast

Fig. 20.—VIEW OF SNOWDON.



portion of Wales, but may range eastward to the distant plains of England, and westward across St. George's Channel to the blue hills of Ireland. In the north the Isle of Man and Scotland are also visible. Snowdon, during the glacial epoch, was a centre from which six glaciers descended the divergent valleys extending at its foot. The greatest of these occupied the valley of Llanberis, covering it to a depth of 1,200 feet. At that time the *llyn*s, or lakes of green-hued water, which occupy the hollows of this mountain group, were filled

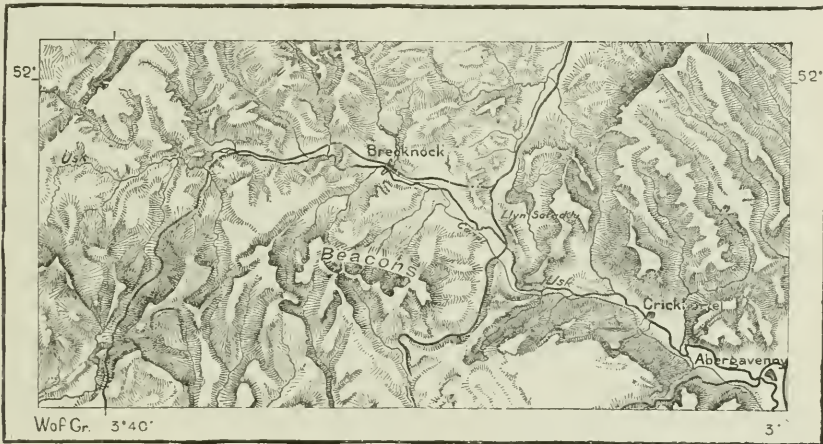


PASS OF LLANBERIS.

Plynlimmon* (2,481 feet), a rather tame mountain range of Silurian slate containing rich veins of lead ore, forms the connecting link between the mountains of North and South Wales. It occupies the very centre of the principality, and the Severn and the Wye have their origin in its valleys. The range which stretches thence south-westward as far as St. David's Head nowhere exceeds a height of 1,800 feet. Another range extends along the right bank of the Severn, terminating in Long Mountain (1,696 feet), on the border of Shropshire. The valley of the Wye is bounded on one side by Radnor Forest, and on the other by the Epynt Hills: both are desolate mountain tracts, covered with mosses and peat or thin herbage. The valley of the Usk separates the Epynt Hills from the Black Mountains, or Forest Fawr, the highest range of Southern Wales, within which the Brecknock Beacons attain a height of 2,163 feet. These mountains are covered with herbage, and they derive their epithet "black" from the dark

Fig. 22.—THE BRECKNOCK BEACONS.

Scale 1 : 600,000.



appearance of the heath when out of blossom, and their generally desolate character. These hills of South Wales cannot compare in picturesqueness with those of the north, and the view afforded from many of their summits often includes nothing but bogs or monotonous grassy hills. Less disturbed in their geological structure, they are, on the other hand, richer in mineral wealth. North Wales, besides yielding slate, lead, and a little copper, embraces a coal basin of small extent, which is, however, likely to become exhausted before the close of the century; but the carboniferous region which covers so vast an area in the south is one of the most productive mineral districts of Great Britain. It was first described by Owen towards the close of the sixteenth century. In area it exceeds any one of the coal basins of England, and it reaches a depth of no less than 10,000 feet.† Of its hundred seams, sixty-six, of a total average thickness of

* Or rather, Pum Lumon, or "Peak of Five Points."

† Edward Hull, "The Coalfields of Great Britain."

These variations of level are perhaps still going on. They must have singularly increased the effects of erosion, as exercised upon the rocks and coasts of Wales. The carboniferous formation of South Wales originally occupied an oval-shaped basin of pretty regular contour, surrounded concentrically by beds of more ancient age, but it has been visibly encroached upon by the floods of the Atlantic. The peninsula of Gower, to the west of Swansea, is nothing but the remains of an ancient promontory, formed of carboniferous and Devonian rocks. St. Bride's

Fig. 24.—EFFECTS OF EROSION ON THE COAST OF SOUTH WALES: THE HUNTSMAN'S LEAP.



Bay, at the south-western angle of Wales, is the result of the continued erosive action of the sea. The two promontories which bound it on the north and south are composed in a large measure of hard rock, capable of resisting the onslaught of the sea, but the softer intervening rocks of the carboniferous formation have been washed away, and their place is occupied now by a bay of strikingly regular contours.* The erosive action of rain and running water has completely changed the

* Ramsay, "The Physical Geology and Geography of Great Britain."

surface features of the interior of the principality. A large portion of South Wales, anciently covered by the sea, has, since its emergence, been sculptured by the surface water into the succession of ravines, glens, and valleys which now intersect the basins of the Usk, Wye, and other rivers, for the most part designated by the same name slightly modified, as Taf, Tawey, Towey, Taivi, or Daffy. The hill-tops and isolated table-lands of Cardiganshire rise to an ideal line which ascends gently as we proceed to the eastward, and it is thus clear that the inequali-

Fig. 25.—THE SUSPENSION BRIDGE, MENAI STRAIT.



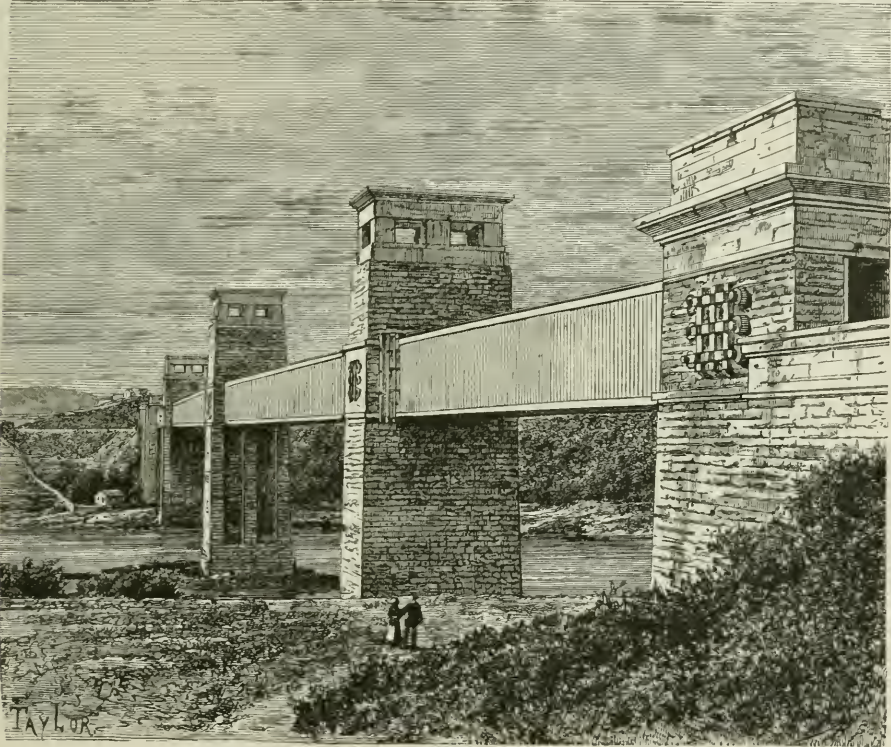
ties of the surface must be of comparatively recent origin, whilst the hills are the remains of an ancient plateau which had a gentle slope to the westward.

A few rocky islands have been severed by the waves of the ocean from the coast of South Wales, but Anglesey is the only large island of the principality. It formed originally a portion of North Wales. Of its ancient connection with the neighbouring mainland there can be no doubt, for the geological formations on both sides of the Menai Strait correspond. The dividing strait passes through carboniferous rocks, bedded between Silurian strata and rocks of porphyry. Professor Ramsay is of opinion that the valley now occupied by the strait is of glacial origin, and was scooped out, not by the glaciers of Snowdon, which never reached so far, but by those of Cumberland.* If it is true that horsemen were formerly able to cross the strait at low water, great changes must have taken

* *Quarterly Journal of the Geological Society*, May, 1866.

place along this part of the coast of Wales during historical times. At present the width of the strait is nowhere less than 560 feet, whilst its least depth is 16 feet. Its northern entrance is accessible to vessels at all stages of the tide, whilst the southern entrance is closed by a bar having only 6 feet of water above it. Two famous bridges span this strait, and join Anglesey to the mainland. Their height is so considerable that sailing vessels of average size can pass beneath them. By far the more elegant of these structures is the Suspension Bridge, designed

Fig. 26.—THE BRITANNIA TUBULAR BRIDGE, MENAI STRAIT.



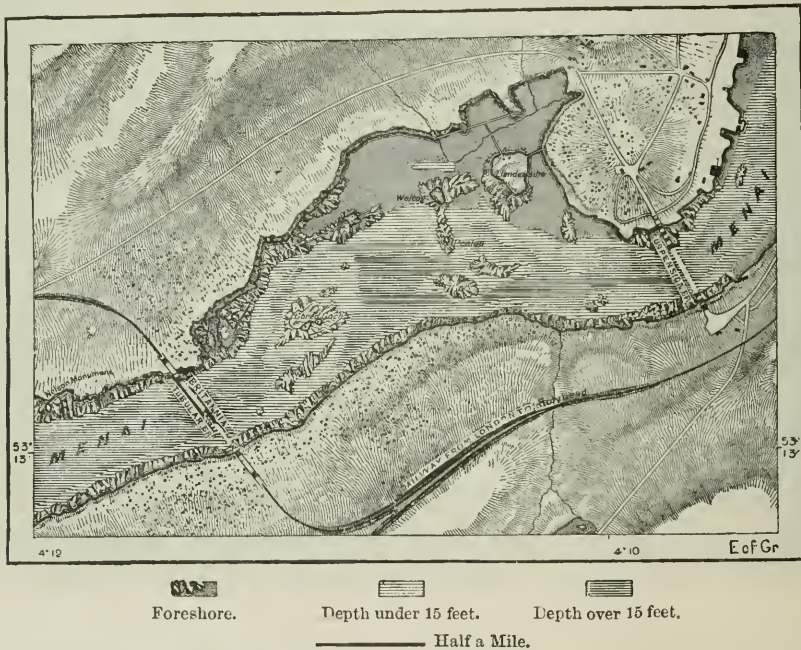
by Telford, and opened for traffic in 1826. The height of its roadway above high water is 100 feet, and the central opening, between the two suspending piers, is 553 feet wide. The other bridge was erected by Robert Stephenson, and is known as the Britannia Tubular Bridge, from the rock on which the middle tower is erected, the rock itself having been named after the *Britannia*, which was wrecked upon it. The bridge has a total length of 1,833 feet, and is divided into four spans, the two centre ones being each 460 feet wide. This bridge was built for the railway from London to Holyhead, which runs across it. It is remarkable as an engineering work, but it has been surpassed, since its construction, not only in Holland and the United States, but also in the British Isles.

Anglesey, the ancient Mona, was formerly the heart of Celtic Britain. Here the most revered of the Druids had their seat, and from this remote locality, surrounded on all sides by water, they exercised that sort of power

over the inhabitants of Britain which is born of mystery. Some historians are even of opinion that Anglesey was visited by the priests of Gaul, in order to be initiated into the secret rites of Druidism. Ancient ruins, known as *Terr Drew* and *Terr Beirdd*—that is, Druids' or Bards' dwellings—still exist;* but in fact the whole of Wales is one huge temple, if not of Druid worship, at all events of the religion that preceded it; and everywhere we meet with *caerns*, springs, and ruins, which commemorate some miracle or the mythical feats of the Cymric ancestors of the modern Welsh. In these records of ancient Wales Christian legends are mingled with heathen fables, which latter survive to this day, outwardly adapted to the changing spirit of the times. Cromlechs are as numerous as in Brittany, and equally respected, for in their presence the Welshman feels himself the

Fig. 27.—THE BRIDGES OVER MENAI STRAIT.

Scale 1 : 25,000.



descendant of an ancient race. The name of some ancient hero is attached to nearly every one of these stones. The large cromlech in the peninsula of Gower, to the west of Swansea, is thus dedicated to King Arthur, the legendary King of Old Wales. An oval pit, Caerleon, near Newport, which excavations have clearly shown to be the site of a Roman amphitheatre, is popularly identified with Arthur's Round Table, at which the King sat with his knights when they came back from their chivalrous expeditions. Near Carmarthen, long the capital of the Welsh, a grotto is pointed out, in which the fay Vivian kept Merlin the magician a prisoner. In another part of Wales, at the base of Plynlimmon, near the village of Tre Taliesin, tradition points out the burial-place of Taliesin, the

* Alph. Esquiros, "L'Angleterre et la vie anglaise."

famous bard—a circular mound, anciently surrounded by two circles of stones. If any one sleep upon this grave he will arise either a poet or a madman. It was to this mound that the bards wended their steps in search of inspiration when desirous of composing *tribannau*, or “triads.” Owing to their symbolism, the meaning of these triads often escaped the profane, but some of them deserve to be remembered for all time. “Three things there are,” one of them tells us, “which were contemporaneous from the beginning—Man, Liberty, Light.”*

The Welsh, notwithstanding the extension of roads and railways, of manufacturing industry and commerce, have kept alive their national traditions and their language. The principality of Wales has ceased to exist as an independent country since the middle of the thirteenth century; nevertheless the Welsh, who call themselves “Cymry”—that is, “they that have a common fatherland”†—look upon themselves as a separate people, and have often attempted to throw off the yoke of the English kings. Like the Bretons of France, their kinsmen by race and language, they seized the opportunities afforded by the civil wars in which the nation, to which they had been attached by force, found itself involved. Thus in the seventeenth century they were ardent Royalists, hoping thereby to establish indirectly their claim to national independence. During the seven years the war lasted the Welsh remained faithful to King Charles, whose cause they had embraced as if it were their own, and Cromwell found himself obliged to storm several of their strongholds. But this was the last struggle, and the public peace has not since been disturbed, unless, perhaps, during the so-called Rebecca riots in 1843, when bodies of men, disguised as women (“Rebecca and her Daughters”), overran the country, and made war upon turnpike toll collectors. Since 1746 the “principality” of Wales has formed politically a portion of England. In matters of religion, however, there exist certain contrasts between the Welsh and English; but these are the very reverse of what may be observed in France, where the Bretons are far more zealous adherents of the old faith than the French. The Welsh, being addicted to mysticism, as enthusiastic as they are choleric, passionately fond of controversy, and impatient of rules laid down by strangers, naturally rejected the episcopal rites adhered to by a majority in England. Most of them are Dissenters; Calvinistic Methodists, Baptists, and Congregationalists being most numerous represented.‡ About the middle of the eighteenth century, when Whitefield, the famous preacher, passed through the valleys of Wales, religious fervour revived throughout the principality, and in the smallest hamlet might be heard hymns, prayers, and vehement religious discourses. The Welsh Dissenting bodies have even anticipated their English brethren in several religious movements. It was they who established the oldest Bible Society and the first Sunday schools. They maintain a mission in Brittany for the purpose of converting their kinsmen separated from them by the ocean. Still, in spite of all this religious zeal, the Welsh are inferior to the English as regards general

* Pictet, “Mystères des Bardes, Cyfrinach Beirdd Ynys Prydain.”

† H. Gaidoz, *Revue des Deux-Mondes*, May 1st, 1876.

‡ There are in the principality 1,145 churches of the Establishment, and about 3,000 chapels of Dissenters, and in the vast majority of these latter the services are conducted in Welsh.

education. Their principality, together with the neighbouring county of Lancashire, exhibits the blackest tint on a map showing the state of illiteracy.*

Welsh, though a guttural language, is nevertheless full of harmony. Its chief feature consists in the mutation of certain consonants at the beginning of words, and it bears a greater resemblance to the Breton of Armorica and ancient Cornish than to the Gaelic spoken in Scotland and Ireland.† The language is in a better state of preservation than Breton, and boasts of a literature incomparably richer. Theological works occupy a prominent place, and it is probably owing to the zeal of preachers bent upon the saving of souls that Welsh has not fallen into disuse.‡ The first Welsh book was printed in 1546. This was merely an almanac, but it was succeeded, in the following year, by the first English-Welsh dictionary. During the present century Welsh literature has been enriched with periodical publications, journals, and reviews, besides numerous popular songs and tales discovered in the libraries of the country. But many other precious documents, still hidden away in libraries, ought to be published, for it was from Wales that mediæval Europe received the traditions and poems of Arthur's Round Table. The study of ancient Welsh is now pursued by many savants, and not only brings to light literary fragments of high value, but also exercises an important influence upon the study of other Celtic languages, including even those which survive only in the names of places. As to the Welsh themselves, they have an abiding love for their ancient language, and cling to it with great tenacity. The *eisteddfodau*, or musical and literary meetings, which have taken the place of the ancient *gorsedd*, or court of justice, held by the Druids, are highly popular. Tradition names King Arthur—magician, priest, and king—as having instituted these meetings, and awarded prizes to the best players on the *telyn*, or Welsh harp. Even now the victorious bards, musicians, and singers are frequently crowned in his name, and the president, standing upon a cromlech, still opens the proceedings by pronouncing the time-honoured and noble formula of "The Truth against the World."§ So great is the love which the Welshman bears his mother tongue, that these eisteddfodau are held not in Wales only, where the language is spoken by over 900,000 persons,|| but also at Birkenhead, in the

* Lord Aberdare, at the Eisteddfod of Birkenhead, in 1878.

† Latham, "Ethnology of the British Islands."

‡ H. Gaidoz, *Revue des Deux-Mondes*, May 1st, 1876.

§ Alfred Erny et Henri Martin, "Tour du monde," t. xv. 1867.

|| GEOGRAPHICAL DISTRIBUTION OF THE WELSH-SPEAKING POPULATION OF WALES.

	Area. Sq. M.	Population.	Persons speaking Welsh.		Persons speaking English, or Welsh and English. Per Cent.
			No.	Per Cent.	
Districts in which Welsh is spoken by a majority	6,050	1,025,573	887,870	86·5	81·7
Districts in which it is spoken by 25 to 50 per cent.	357	113,030	38,046	33·7	96·8
Districts in which it is spoken by less than 25 per cent. of the in- habitants	1,501	174,080	8,614	4·9	100·0
Total	7,908	1,312,583	934,530	71·2	85·5

(E. G. Ravenstein, *Journal Statistical Society*, 1879.)

New World, and even in Australia. Wherever Welsh emigrants settle down in numbers, the *Cymraeg* is spoken side by side with *Sassenach*, or Saxon. At Liverpool there are some twenty chapels in which the services are conducted in Welsh, and a journal is published in *Cymraeg*.* The Welsh in the United States coccasionally meet in order to sing and declaim in the language of the ancient

Fig. 28.—LINGUISTIC MAP OF WALES.

By E. G. Ravenstein.



bards; and the indomitable colonists who, notwithstanding the difficulties they encountered, founded a New Wales in Patagonia, retain the use of their mother tongue, and the Rio Chuput, on the banks of which they established their settlement, has been renamed by them Afon Llwyd, or "Grey River." Throughout the world Welsh is spoken by far above 1,000,000 human beings.

Nevertheless the Celtic spoken by the Cymry of Wales would appear to be doomed

* Throughout England there are about 110 chapels in which the services are conducted in Welsh.

to extinction, and a time must come when it will survive only among philologists. Many use it from patriotic motives, others employ it to gratify their craving after literary honours. All men of education learn to think in English, and even at the *eisteddfodau* the language of the conquering Saxon struggles for pre-eminence with that of the vanquished Celt. It even happens occasionally that the president of these meetings is ignorant of the language in which most of the poetry is being recited. Although Welsh is still general throughout the greater portion of Wales, even in the towns, and in the western part of Monmouthshire, English nevertheless is rapidly gaining ground. It is virtually the language of civilisation, and the only means of communicating with the outside world. Its use is general in all the schools—the Sunday schools attached to chapels excepted—and it is rare nowadays to meet with young people unable to converse in English. A knowledge of the old mother tongue is thus daily becoming of less service, and, together with the old-fashioned heavy cloaks and the men's hats worn by women, is being put aside. The number of persons of Welsh origin scattered throughout the world, who have completely forgotten the language of their ancestors, is probably greater than that of the Welsh who remain at home, and still speak it. At all events we might conclude that such is the case from the large number of Welsh family names met with in all English-speaking countries, nearly all of them being modifications of Christian names, such as Jones—the most frequent of all—Roberts, Edwards, Humphreys, and P'ugh, P'owel, P'robert, Ap'jones (son of Ugh, Owel, Robert, or Jones). In the United States alone there are supposed to reside 3,000,000 persons of Welsh descent, of whom hardly a third have remained faithful to the language of their ancestors.* Most of these Welsh have become as good Americans as the pilgrim fathers of New Plymouth, and the Welshmen of Great Britain can hardly be serious when they claim Thomas Jefferson as one of their compatriots. But the native genius of the race survives in a thousand new forms, and in this sense the Cymry can still repeat their ancient motto, "*Tra mor, tra Briton.*"

TOPOGRAPHY.

THE ancient feudal cities of Wales present a striking contrast to the modern towns which have sprung into existence at the call of industry. The former, irregular and picturesque, with the ruins of one of the twenty-six strongholds of the country perched on a commanding rock, are possessed of individual features, and have long ere this been wedded as it were to the charming country which surrounds them. The latter, on the other hand, are generally mere agglomerations of buildings prematurely blackened. Their only monuments are factory chimneys, and they encroach on the surrounding fields, without that softening of their lines which would bring them into harmony with surrounding nature.

FLINTSHIRE (F^{FLINT}), the north-easternmost county of Wales, stretches inland from the estuary of the river Dee. Its surface along that river, and more especially in the tract known as Sealand, is level, but the interior is beautifully diversified

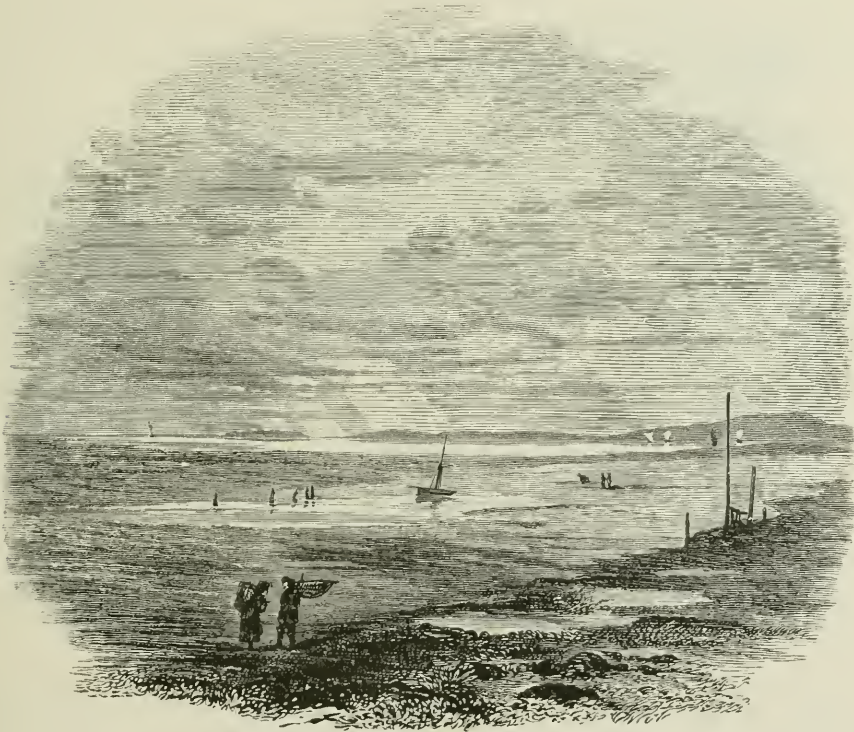
* Thomas, "*Hanes Cymry America.*"

by hills, which in the Moel Fammau ("Mother of Hills") attain an elevation of 1,823 feet. Coal and lead abound, and there are also iron works, but the manufacturing industry is of little importance.

Hawarden, near which there are some potteries, overlooks the alluvial plain at the mouth of the Dee. *Mold* lies some 4 miles inland, on the Alyn, a tributary of the Dee: the hills enclosing it are rich in coal and oil shale, whilst the river turns the wheels of several paper-mills.

Flint, the county town, with large chemical works and collieries, lead mines and paper-mills, in its neighbourhood, was formerly accessible to large vessels, but its silted-up port now admits only small coasting vessels. Four miles to the west of it

Fig. 29.—THE SANDS OF THE DEE, FROM ABOVE BAGILT.

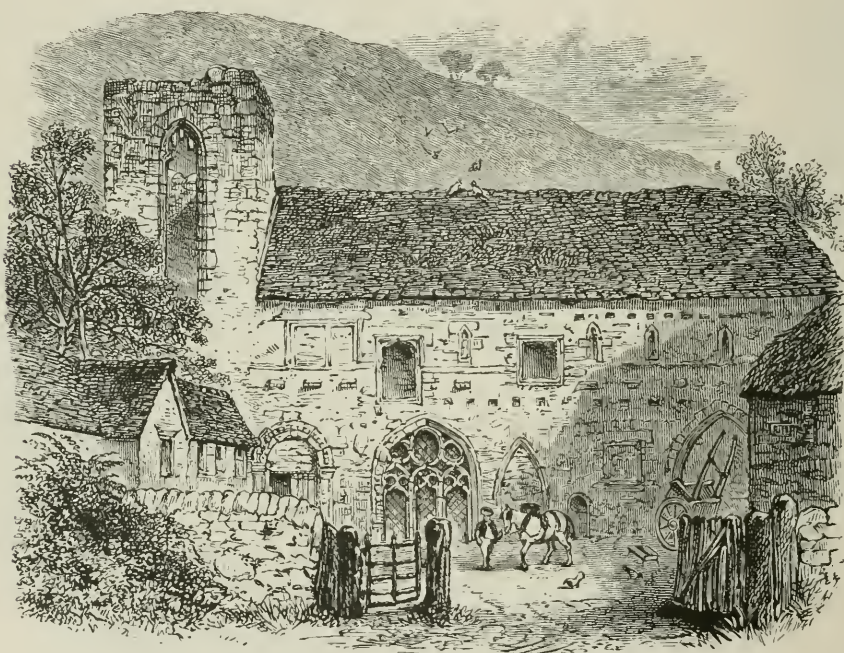


lies the ancient town of *Holywell* (Trefynnon), 1 mile from the estuary of the Dee. It has lead mines, lime-kilns, and Roman cement works, and supplies the potteries of Staffordshire with chert, but is celebrated more especially for its copious and miraculous well, dedicated to St. Winifrid, and formerly a noted place of pilgrimage and source of wealth to the adjoining Abbey of Basingwerk. A few miles inland lies *Caerwys*, the "Fortress of Assize," which up to 1672 was the county town, and famous for its cisteddfods, but is now of little note. *Mostyn*, a small port below Holywell, exports coal from the collieries in its neighbourhood, whilst *Rhyl*, near the mouth of the Elwy, has become a favourite seaside resort. Proceeding up the Elwy, past *Rhuddlan* and its marshes, where Offa, King of

Mercia, in 795, annihilated the Welsh, fighting under the leadership of Caradoc, the lofty spires of the cathedral of *St. Asaph* indicate our approach to the charming Vale of Clwyd, the greater part of which lies in the neighbouring county of Denbighshire.

A detached portion of Flintshire lies to the south-east, between the English counties of Cheshire and Shropshire. This is known as the Maelor Saesneg, or "Saxon Land," and Welsh has not been heard there since the days of Henry VIII. This small tract of country abounds in curious old villages, the most remarkable amongst them being *Bangor Isycoed* ("Under the Wood"), or *Monachorum*, famous for its monastery, supposed to have been founded about the year 180 by the first Christian King of Britain; but of this not a vestige remains at the present day.

Fig. 30.—REMAINS OF VALLE CRUCIS ABBEY.



DENBIGHSHIRE (DINBYCH) is a somewhat straggling county, extending from the broad Vale of the Dee to the Irish Sea, between the rivers Elwy and Conway. The greater portion of its surface is hilly, and fit only for pasture, but it is intersected by several fruitful valleys, the most extensive being that of the Clwyd.

Wrexham and *Ruabon*, the two most populous towns of the county, lie in the east, close to Watt's Dyke, which separates the Vale of the Dee from the hilly part of the county, and which was thrown up by the Saxons as a defence against the Welsh. Both these towns depend upon coal and iron for their livelihood, and the former likewise produces some flannel. The dyke referred to, as well as that of Offa, to the south of the Dee, approximately marks the linguistic boundary; and whilst Wrexham, to the east of it, is virtually an English town, Ruabon, on its farther side, is almost wholly Welsh, and is becoming more so every day, owing to the

immigration of Welsh labourers. Above Ruabon the Dee flows through the romantic *Vale of Llangollen*, where limestone quarrying and burning, slate quarrying, and the weaving of flannel are carried on extensively. Near the small town of Llangollen stand the remains of *Valle Crucis Abbey*, the most picturesque ruin of the kind in North Wales.

The *Vale of Clwyd*, which opens out upon the Irish Sea between Rhyl and Abergele, is inferior to that of Llangollen in picturesque features, but far surpasses it in fruitfulness. *Denbigh*, the capital of the county, rises in its midst on a steep limestone hill crowned by a ruined castle. It was formerly noted for its glovers, tanners, and shoemakers, but not lying on a natural high-road of commerce, it has not become very populous, though of some importance as the centre of a fine agricultural district. It is nevertheless one of the most pleasant towns to visit. The prospect from its castle over the wide valley is magnificent, and the town abounds in quaint timbered buildings, with overhanging stories and gabled roofs. Higher up the valley stands *Ruthin*, a picturesque town, known for its artificial mineral waters.

Llanrwst is the only place of note on the river Conway, which forms the western boundary of Denbighshire, and is navigable to within a short distance of the village. Gwydyr Castle and the chalybeate springs of Trefrew lie within Carnarvonshire.

CARNARVONSHIRE (ARFON) is one of the most mountainous counties of Wales, for within its borders rise the ranges of Snowdon, the fastnesses of which afforded a last refuge to the Welsh when struggling for their independence. The south-western portion of the county, terminating in the bold promontory of Braich-y-Pwll, off which lies Bardsey Island (Ynys Enlli), is less elevated. Sheep-farming and slate quarrying constitute the principal occupations of the inhabitants.

The district of Creuddyn, with the bold promontory of Orme's Head, though lying to the east of the Conway, forms a part of Carnarvonshire. *Llandudno*, one of the most attractive seaside resorts in Great Britain, is situate within that detached portion of the county. The copper mines of Great Orme's Head have been worked from time immemorial, and were formerly exceedingly productive.

Conway, an ancient city enclosed within a lofty wall, formerly defended the difficult road along the coast, and the estuary of the river upon the left bank of which it has been built. The construction of the railway embankments and of the bridges over the river proved very costly. The tubular railway bridge is built in the massive architectural style of the castle which commands it. *Bangor*, at the northern entrance of Menai Strait, is for the most part of modern origin. Near it the railway bifurcates, one branch conducting the traveller across the strait to Holyhead, and the other carrying him to Carnarvon. Bangor is a favourite resort of tourists, affording unusual facilities for exploring delightful valleys, climbing lofty mountains, and visiting interesting castles perched upon capes or the spurs of the hills. The town is largely indebted to the neighbouring slate quarries for its prosperity. *Port Penrhyn*, whence the slate of the famous Penrhyn quarries is exported, lies close to it. Proceeding up

the beautiful valley of Nant Francon, and passing through *Bethesda*, a town of quarrymen, we reach the Penrhyn quarries after a five-mile walk. They form one of the busiest hives of human industry. Tier rises above tier around a huge amphitheatre; locomotives, dragging long trains of trucks laden with slate, pass incessantly; and at short intervals flashes of light and puffs of smoke, followed by loud reports, announce the firing of blasting charges. About 3,000 workmen are permanently employed in these quarries, and if we would obtain an idea of the quantity of slate already removed, we need merely glance at the rugged pyramids which rise like towers in the centre of the amphitheatre. The slate from these quarries finds its way to all parts of the world. Several towns in Norway have their houses covered with it,* and it is also exported to America. The annual produce of the quarries is estimated at 70,000 tons, worth £160,000.

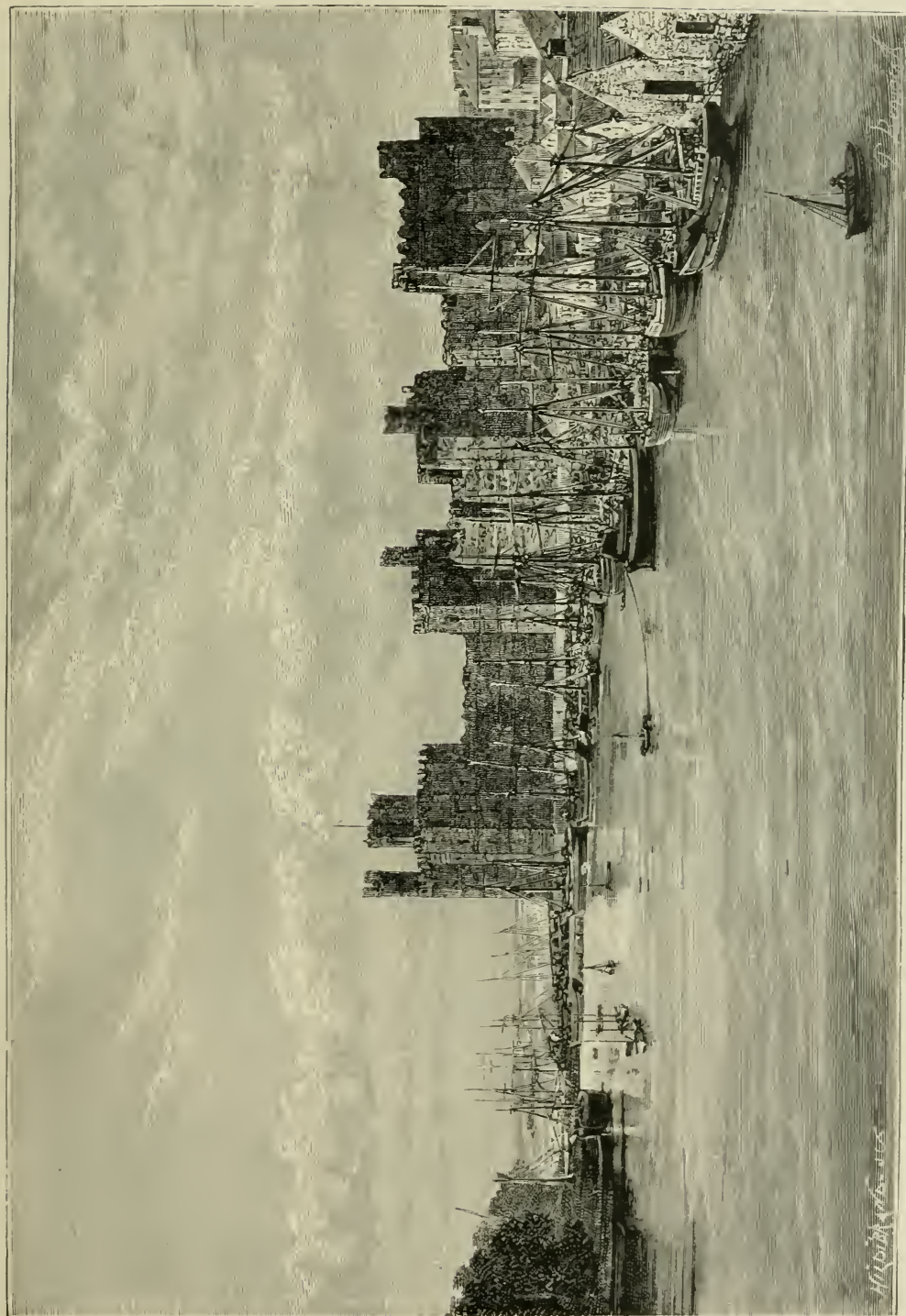
Carnarvon (Caer-yn-ar-fon), capital of the county, and formerly of the whole of North Wales, retains the lofty walls of its feudal castle, and near it may be seen the ruins of the Roman station of Seguntium. Like Bangor, it depends upon fishing, quarrying, and its coasting trade for its prosperity, and is also a great favourite with tourists, who crowd its streets and environs during the summer. Near it are the slate quarries of *Dinorwic*, and others on the slopes of the Pass of Llanberis, to the north of Snowdon. These quarries are hardly inferior to those of Penrhyn. Their débris is unfortunately gradually filling up Llyn Peris, and disfiguring one of the most charming prospects in the country. Other quarries lie in the south, near *Nantlle*.

Nevin, *Pwllheli*, and *Criccieth* are old towns with small ports in the south-western part of the county, but they are exceeded in importance by *Tremadoc* and *Portmadoc*, both founded in the beginning of the century, partly upon soil won from the estuary of Glas Llyn. Portmadoc is the shipping port of Ffestiniog, in Merionethshire, with which a miniature railway connects it.

ANGLESEY (MONA), owing to its position in advance of the mainland and opposite to the Bay of Dublin, has at all times been a place of traffic, contrasting in this respect with the mountainous parts of Wales, whose inhabitants lived in seclusion, and came but little into contact with strangers. Gently undulating, fertile throughout, and possessed of productive veins of copper, Anglesey held out inducements to colonists. The Druids, whom Tiberius caused to be expelled from Gaul, sought a refuge here. The old bards speak of Anglesey as the "shady island;" but the forests which justified this epithet have long disappeared, and the surface of the country is now almost treeless. The gardens of Anglesey are noted on account of the variety of their produce. The climate is mild and equable, and even bamboos grow in the open air. Anglesey, owing to its great fertility, was known in former times as "Mona, mam Cymri;" that is, "The Mother of Cambria."

Baumaris, the capital, at the northern entrance of the Menai Strait, boasts of an old castle, is a favourite seaside resort, and carries on a considerable trade with England, several thousand coasting vessels annually frequenting its port. *Amlwch*, on the north coast, derives its importance from the copper mines in Parys

* Carl Vogt, "Nordfahrt."

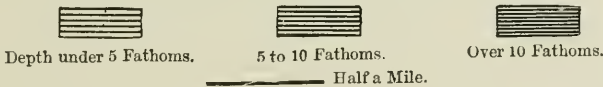
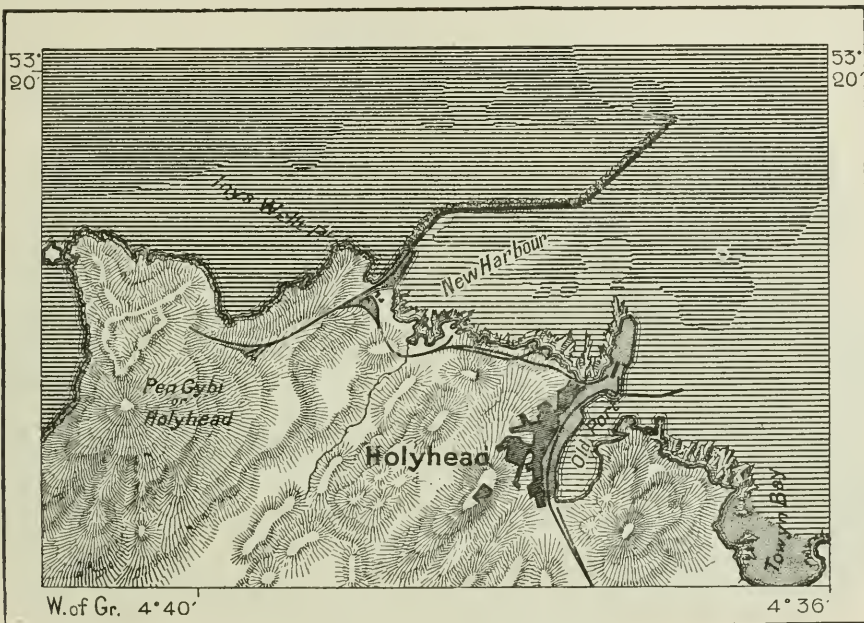


CARNARVON CASTLE.

Mountain, a couple of miles to the south of the town. They were discovered in 1768. *Holyhead* (Caer Gybi), on a smaller island lying off the west coast of Anglesey, to which it is joined by a railway embankment and an old bridge, has attained considerable importance as the nearest port to Ireland. Holyhead may almost be called an outport of London, and engineering works on a large scale have been completed to adapt it to the requirements of the increasing trade between England and Ireland, and as a harbour of refuge for vessels trading to Liverpool. Two breakwaters, with a total length of 9,860 feet, planned by J. M. Rendel, and completed by Sir J. Hawksley in 1873, protect a harbour with an area of 267 acres. They are built upon rubble mounds, 250 feet wide at the

Fig. 31.—HOLYHEAD HARBOUR.

Scale 1 : 50,000.



surface of the water, and their solid walls, rising to a height of 38 feet, form a noble promenade. The stones for these works were furnished by the neighbouring hills. Mariners may well have bestowed the epithet of "Holy" upon so conspicuous a promontory, even though a monastery had not been established at its foot until the seventh century after Christ. A fine lighthouse rises at the head of the breakwater, which, with the light on the Skerries, 6 miles to the north of it, points out the road to Liverpool.

Llangefni and *Llanerchymedd* are the principal towns in the interior of the island, the former having collieries, whilst the latter is famous for its cattle fairs and snuff. A remarkable cromlech, known as "Arthur's Quoit," stands near it.

MERIONETHSHIRE (MEIRIONYDD) is perhaps the most mountainous county of all Wales, although Cader Idris and its other summits are inferior in height to Snowdon. The north-eastern portion of the county is drained by the river Dee, which flows through Bala Lake. The western portion slopes down towards Cardigan Bay, and the rivers traversing it form broad and shallow estuaries before they enter the sea.

Bala, at the foot of Bala Lake, or Llyn Tegid, is much resorted to for fishing and shooting. It is the seat of colleges of the Calvinistic Methodists and Independents. Bala Lake has been selected by the Liverpool Corporation to furnish it with a supply of wholesome drinking water. *Corwen*, a quiet market town, is the only other place of any importance in the beautiful valley of the Dee.

Festiniog, on the Upper Dwyryd, is a large parish, containing meadows, woods, and fine mountains, these latter yielding copper as well as slate. The

Fig. 32.—HARBOUR OF REFUGE, HOLYHEAD



quarries employ about 3,500 men, and their produce is exported through Portmadoc. *Harlech*, some distance to the south of the Dwyryd, was anciently the capital of the county, but is now an unimportant place, and only shows some animation in summer, when it is visited by tourists and sea-bathers.

Barmouth, or *Abermaw*, at the mouth of the Mawddach, has a small harbour. Proceeding up the estuary of the Mawddach, and then following the valley of the Wnion, we reach *Dolgelly*, the present capital of the county, situated in a lovely mountain district commanded by the crags of Cader Idris. Here flannel weaving is carried on, and gold and copper mines are worked at Clogan and St. David's, to the north of it. An old cottage is pointed out as the house in which Owen Glyndwir assembled his parliament in 1404.

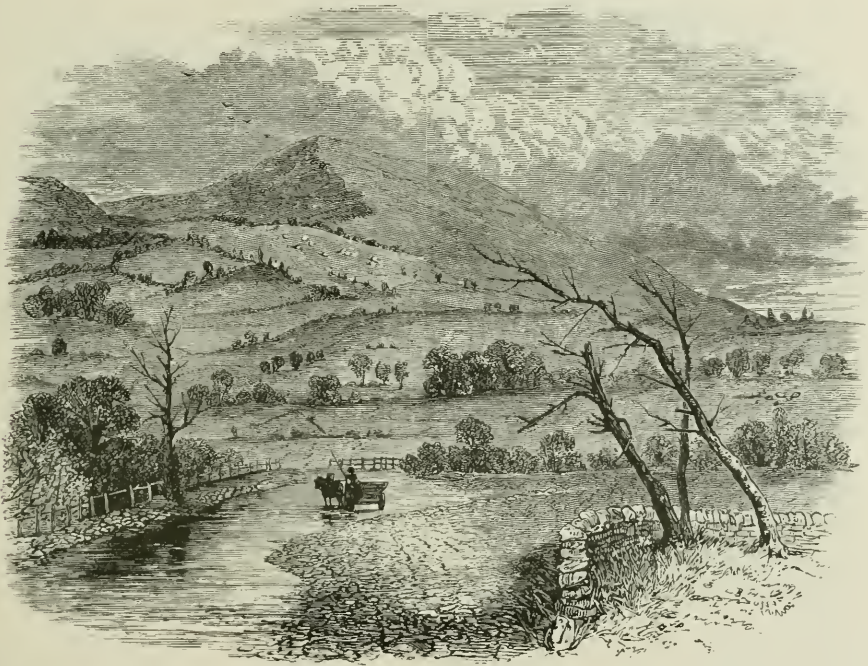
Towyn, within half a mile of the coast, has a mineral spring, and is acquiring some importance as a sea-bathing town. *Aberdovey*, or *Afon Dyfi*, at the mouth

of the Dovey, has a small harbour, from which slate is shipped. Higher up on the same river, in the midst of the mountains, stands *Dinas Mawddwy*, a poor village, surrounded by exquisite scenery.

MONTGOMERYSHIRE (MALDWYN) is for the greater part drained by the Severn and its tributaries, only a small portion of it lying within the basin of the Dovey, towards the west. Barren mountains occupy nearly the whole of its area, but the valleys open out towards the English border, and afford space for the pursuit of agriculture. The manufacture of flannel is carried on extensively, and there are lead mines and quarries.

Montgomeryshire is one of those counties in which Welsh is visibly losing ground. In the valley of the Severn, up to within a mile or two of Newtown,

Fig. 33.—ON THE DEE, NEAR BALA.



Welsh is heard only in the mouths of immigrants and of a few very old people. At Montgomery and Welshpool Welsh has been extinct among the natives for at least fifty years. It is only on the Upper Severn, beyond Llanidloes, on the Upper Vyrnwy, and in the western part of the county, that Welsh remains the language of the majority.*

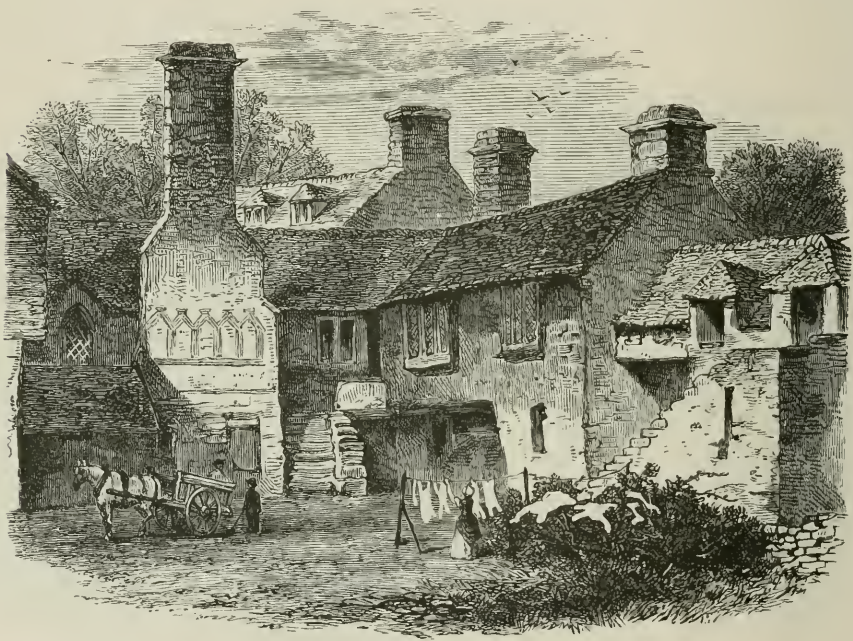
Montgomery, the county town, is a quiet place, with the scanty ruins of a castle, but prettily situated. *Welshpool*, at the head of the navigation of the Severn, is a busy market town. Its chief attraction is the magnificent park surrounding Powis Castle, the ancestral seat of the noble family of Herbert.

* About 44 per cent. of the population speak Welsh, but hardly 10 per cent. are unable to converse in English.

Newtown, higher up on the Severn, is a modern manufacturing town, the principal seat of the Welsh flannel trade. *Llanidloes*, on the same river, is a prosperous town, the inhabitants of which are occupied in the manufacture of flannel and in the neighbouring lead mines. *Llanfyllin*, on the Cam, a tributary of the Severn, is famous for its ale, and a proverb says that "Old ale fills Llanfyllin with young widows." *Llanfair Caer Einion* is built on the borders of the Vyrnwy. The castle from which this Llanfair, or St. Mary's Church, derived its name, exists no longer.

Machynlleth, the only town in the western part of the county, known as Cyfeiliog, is a cheerful place in the midst of charming scenery. It is supposed

Fig. 34.—THE PARLIAMENT HOUSE, DOLGELLY.



to occupy the site of the Roman Maglona. The inhabitants manufacture coarse cloth ("web"), and work in the neighbouring slate quarries and lead mines.

CARDIGANSHIRE stretches from the Dovey to the Teifi, presenting a bold face towards the sea, and rising inland to mountains, which culminate in Plynlimmon. Agriculture, sheep farming, and lead mining are the principal pursuits.

Aberystwith, at the mouth of the Rheidol and near that of the Ystwith, has grown into a sort of Welsh Brighton, with large hotels and a fine beach remarkable for the quantity of pebbles found on it. The buildings of the University College of Wales adjoin the ruins of a castle founded by Gilbert de Strongbow. Lead smelting is carried on in the neighbourhood. Farther south, on the coast, are *Aberaeron*, a favourite watering-place; *New Quay*, with a small harbour and quarries; and *Aberporth*, a primitive fishing and bathing place. *Cardigan*, near the mouth of the Teifi, whence it exports the produce of its

fisheries, has but a small harbour, which larger vessels can enter only with the tide. Travelling up the lovely valley of the Teifi, we reach *Lampeter*, a bright market town in a fine situation, and the seat of a college of the Church of England. North of it lies *Tregaron*, to the north-west of which are the ruins of *Strata Florida*, an abbey founded in 1184.

PEMBROKESHIRE is called in Welsh *PENFRO*—that is, “Head of the Peninsula”—a very appropriate name for a county forming the south-western extremity of Wales. The surface of Pembrokeshire is for the most part undulating, and rises in the *Mynydd Preseley* to a height of 1,758 feet. The coast is generally bold,

Fig. 35.—MILFORD HAVEN.

Scale 1 : 330,000.



and Milford Haven, a veritable fiord with many ramifications, penetrates far inland. It is easily accessible, and capable of affording shelter to the combined merchant fleet of England, but owing to its remote situation no great mercantile harbour has arisen on its shores.

Pembrokeshire is Welsh in its northern, English in its southern half, and the line separating the two races is well marked, extending from the northern part of St. Bride's Bay to Narberth, which lies to the east of it. When Arnulf de Montgomery conquered the country, in the reign of Henry I., he no doubt brought English settlers with him. These were on two subsequent occasions reinforced by

Flemings, who established themselves in Roose, with Haverfordwest for their capital, and in the peninsula of Castle Martin, to the west of Tenby. In these early days Southern Pembrokeshire was known as "Little England," and although the King's writ did not then run in Wales, it was duly acknowledged in this "Anglia-trans-Wallnia." The present English inhabitants may no doubt claim descent from these early settlers, but they have perpetually been receiving reinforcements, and the dialect they now speak is said to resemble that of Somersetshire.

Haverfordwest is picturesquely seated on the slope of a hill overlooking the Cleddau, which flows into Milford Haven, and is navigable for vessels of a burden of 100 tons. It is the capital of the county. The keep of its old castle has been converted into a prison. *Pembroke*, on the south side of Milford Haven, is interesting chiefly on account of its Norman castle, the birthplace of Henry VII. (1456), now in ruins. *Pembroke Dockyard*, a Government ship-building yard, defended by for-

Fig. 36.—MILFORD HAVEN.



midable military works, lies 2 miles north-west of the old town. A steam ferry connects it with *New Milford*, where docks have been excavated in the vain hope of this place, so favourably situated, becoming a rival of Liverpool in the trade with America. At present only steamers plying to Cork and Waterford avail themselves of the facilities thus provided. The town of *Milford* lies 5 miles below these docks.

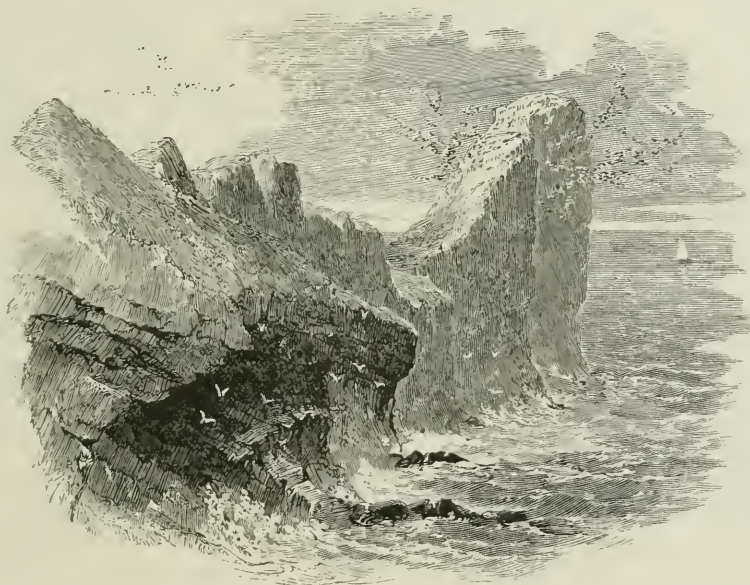
St. David's, the ancient Menapia, in the north-west corner of St. Bride's Bay, is merely a village, but boasts of a grand old cathedral, built in 1176. *Fishguard* and *Newport* are small towns on the north coast, whence slates are shipped. *Tenby*, at the other extremity of the county, is a delightful watering-place, its neighbourhood abounding in charming walks and drives. The ruins of a Norman castle crown the summit of a promontory. *Saundersfoot*, a couple of miles to the north, has collieries and iron works.

CARMARTHEN (CAERFYRDDIN) is for the most part drained by the Towey and Taf, and that portion of the county which lies to the north, along the left bank of the Teifi, is of small extent. The coast is low, and in places marshy, whilst the interior is hilly, or even mountainous, the hills being intersected by productive valleys and wooded glens. Carmarthen Van (2,596 feet), a summit of the Black Mountains, is the highest point in the county. Coal and iron are found, and there are iron works, iron-mills, copper-mills, tin works, and other manufacturing establishments.

Laugharne (pronounced *Larne*), on the west bank of the Taf, is a decayed town, with a small port and some trade in butter and corn. *St. Clears*, higher up on the same river, has partly usurped its trade.

Carmarthen, the county town and reputed birthplace of Merlin, the Welsh

Fig. 37.—THE WORM'S HEAD: PENINSULA OF GOWER.



magician, is seated upon the Lower Towey, 9 miles above its mouth in Carmarthen Bay. It is a picturesque town, with irregular and steep streets. Sir Richard Steele, the essayist, lies buried in its ancient parish church. Tin and iron works are near it. *Abergwilli*, with the palace of the Bishop of St. David's and Merlin's Hill, is in its neighbourhood. Higher up on the Towey are *Llandilofaur*, a market town, with collieries and marble quarries, and *Llandovery*.

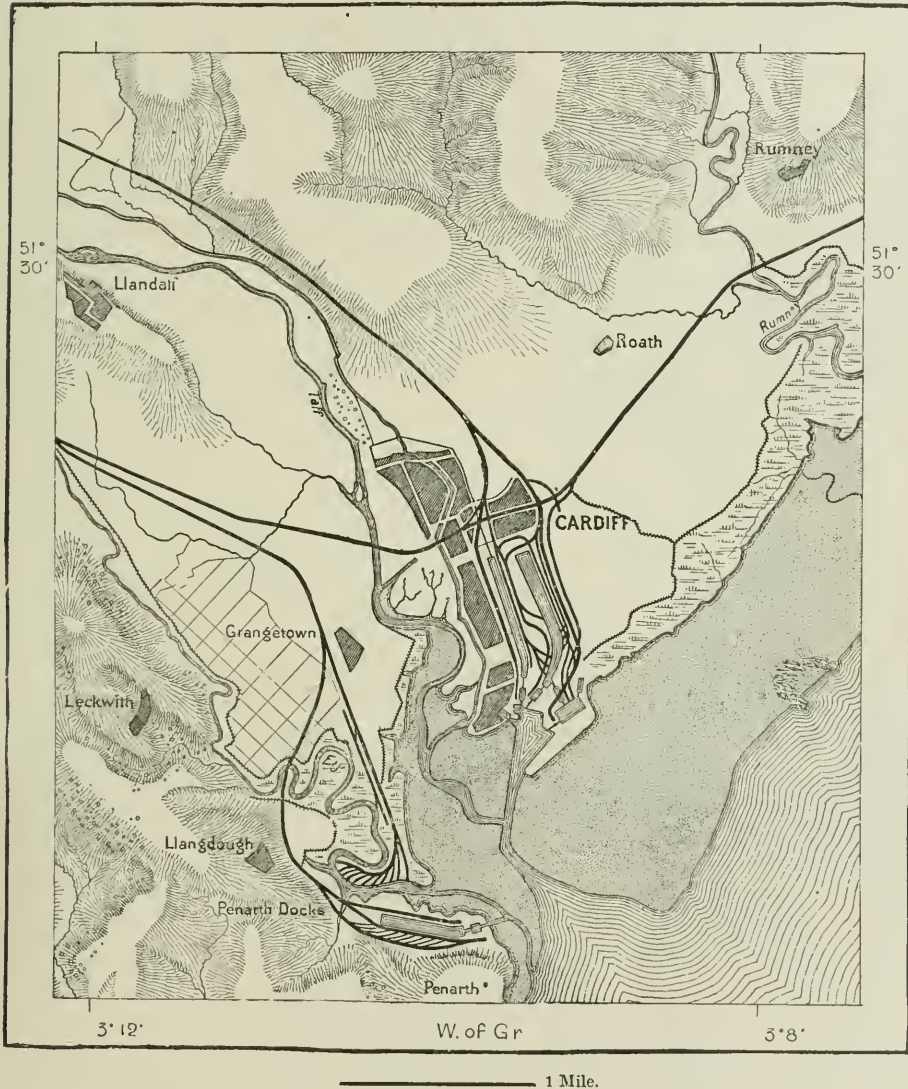
Llanelly, on Burry Inlet, is the principal seaport of the county. It depends in a large measure upon the Cambrian Copper Works, its tin works, and some collieries. *Pembrey*, at the mouth of Burry Inlet, has copper smelting works and a small harbour. *Kidwelly*, to the north of it, lies on a silted-up harbour, and is mainly dependent upon its tin-plate works.

GLAMORGANSHIRE (MORGANWG) is the most southerly county in Wales. Its northern part is hilly, but none of its hills attain a height of 2,000 feet, whilst the

prosperity to the smelting and refining of copper. As early as the twelfth century, we are told by Borrow, Swansea was known for its castings, but it is only since the beginning of this century that it has grown into an important seat of industry. The miners of Cornwall were the first to send their ores to Swansea to be smelted, and so great are the advantages conferred upon the town by its wealth

Fig. 39.—CARDIFF.

Scale 1 : 52,500.



in coal, that copper ores from all parts of the world now find their way to its smelting furnaces. The smoke ascending from the numerous chimneys of the town poisons the atmosphere and kills the vegetation on the surrounding hills. Swansea has excellent docks, and its foreign trade, more especially with France, is of great importance. The museum belonging to the Royal Institution of South

Wales contains a valuable natural-history collection. *Landore*, a suburb of Swansea, is well known for its steel works.

Oystermouth, on the western side of Swansea Bay, has grown into a favourite watering-place. The Neath enters Swansea Bay to the east of Swansea. *Briton Ferry*, at its mouth, has iron and tin-plate works, but is surpassed in importance by *Neath*, a few miles up the river, where copper smelting is carried on; and whence coal is exported in considerable quantities. *Aberafon*, at the mouth of the Avon, has copper works, and carries on a large trade. The small port of *Porthcawl* depends for its prosperity upon the coal mines of *Cwmdu*, in the interior of the county. Still proceeding up the Bristol Channel to its narrowest part, where the estuary of the Severn may be said to begin, we find ourselves opposite the port of *Cardiff*, one of the most important in Europe. Though commanded by an old castle, in which Robert, the eldest son of the Conqueror, lingered a captive for thirty years, and which has been restored as a residence of the Marquis of Bute, Cardiff is essentially a modern town, with broad, clean streets. The exports of coal and iron from the Taff valley are the great source of its prosperity, and since the opening of the famous Bute Docks its growth has been rapid. *Roath*, *Canton*, and *Penarth* are suburbs of Cardiff, and *Llandaff*, the seat of a bishopric founded in the fifth century, lies 2 miles to the north-west of it. Its cathedral has recently been restored. *Cowbridge* and *Bridgend* are the principal towns in the Vale of Glamorgan, which extends from Llandaff to Swansea Bay.

The towns in the basin of the Taff depend upon their collieries and iron works for their prosperity, and like Cardiff, their principal shipping port, they suffered much during the depression of trade. *Merthyr Tydvil*, high up in this valley, and close to the borders of Brecknockshire, is the chief amongst them, though it consists of an agglomeration of factories and dwelling-houses rather than of a compactly built town. Its mines yield coal and excellent iron ore, and as lime, which plays so important a part in the manufacture of iron, is found close to the coal, the conditions are as favourable as possible for the development of the iron and steel industry. The whole of this district is dotted over with iron and steel works, railways intersect each other in all directions, and the lurid glare of smoking heaps of slag lights up the night. The iron works of *Dowlais*, a suburb of Merthyr Tydvil, give occasionally employment to 20,000 men, and rank with the largest works of the kind in existence. *Cyfarthfa*, another of these workmen's cities, formerly enjoyed the monopoly of casting all the guns required by the British Government. It was here that Trevethick constructed his first traction engine.

Aberdare and *Mountain Ash*, on the Cynon, a tributary of the Taff; *Newbridge* (Pontypridd), at the mouth of the Rhondda valley; and other towns along the canal which connects Merthyr Tydvil with Cardiff, are dependent upon their collieries and iron works for existence. They possess hardly a feature to mitigate their rough and grimy aspect, and it is a relief to turn from them to the fine ruins of the feudal stronghold of *Caerphilly*, 8 miles to the north of Cardiff, in the valley of the Rumney.

MONMOUTHSHIRE extends from the Rumney to the Lower Wye, its central

portion being drained by the Usk. Along the coast there are extensive "levels," protected by embankments against the high tides of the Severn; but the greater portion of the county is hilly. The Sugar-loaf Hill (Pen-y-val), to the north of Abergavenny, rises to a height of 1,954 feet.

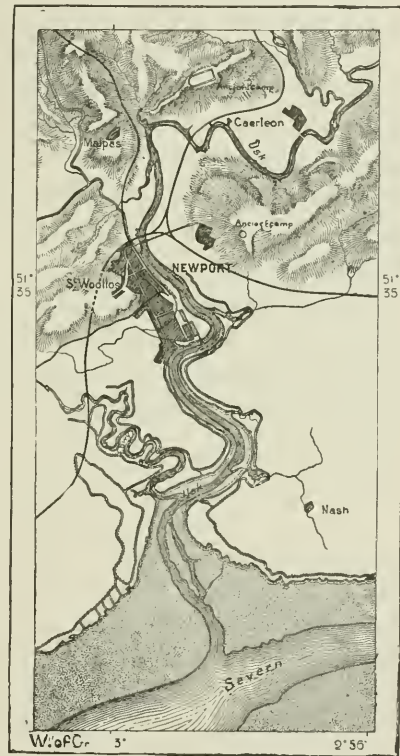
The geographical nomenclature is for the most part Welsh, but English is now the predominant tongue, Welsh being spoken only in the coal and iron regions to the west of the Usk, where its use is perpetuated by immigrants from adjoining counties.

The towns to the west of the Usk, in the valleys of the Sirhowy, Ebwy, and Llwyd, engage in coal mining and the manufacture of iron and steel, the chief amongst them being *Tredegar*, *Abersychan*, *Blaenarvon*, and *Pontypool*. *Newport*, at the mouth of the Usk, is their great shipping port. It has grown from a small village into a populous town, with iron works, nail factories, wire, and nut and bolt works. Its docks give access to the largest vessels, and *Caerleon*, the Isca Silurum of the Romans, and residence of King Arthur, which lies 3 miles above, on the right bank of the Usk, probably at no time equalled it in importance. Higher up on the Usk are *Raglan*, with the ruins of a famous stronghold, and *Abergavenny*, a manufacturing town, producing principally boots and shoes.

Monmouth (Mynwy), the capital of the county, is seated at the confluence of the Monnow with the Wye, in the midst of wooded hills. Its associations are altogether English. In its castle, now a ruin, was born Henry V., the victor of Agincourt. Geoffrey of Monmouth, whose Latin *Chronicles* Shakspeare made use of, was a native of the town. The Wye, between Monmouth and Chepstow, is renowned for its scenery, presenting an alternation of meadow lands, steep cliffs, and woods descending to the water's edge. The ruins of *Tintern Abbey* lie about half-way between the two. *Chepstow* (Aberweye), near the mouth of the river, is a port of some importance. Its castle, on a formidable cliff overhanging the river, was captured by Cromwell, and is now a picturesque ruin.

BRECKNOCKSHIRE (BRYCHEINIOG) is an inland county, comprising the upper basin of the Usk as well as the western slope of the Upper Wye. The Black Mountains, which in the Brecknock Beacons attain a height of 2,910 feet, rise boldly to the south of the Usk, whilst the north is filled with the wooded range of the Mynydd Epynt and other lofty hills. The arable land is of limited

Fig. 40.—NEWPORT.



Scale 1 : 143,000.

1 Mile.

extent, but sheep farming and the rearing of cattle are of importance. Coal and iron abound in the south. Welsh is still the language of the majority, but is losing its hold upon the inhabitants.

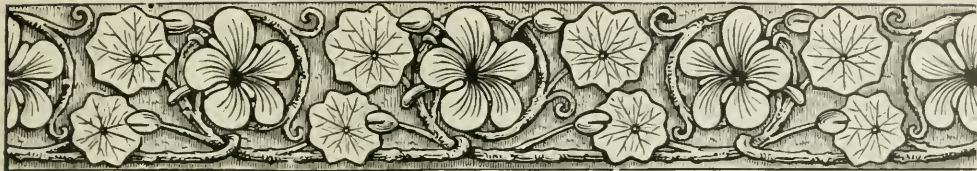
Brecknock, or *Brecon*, on the Usk, centrally situated, is the county town. In the neighbourhood of Llanelly, near the Usk, not far from the boundary of Monmouthshire, are the *Clydach* iron works. *Brynmawr*, another town noted for its iron works and collieries, lies to the south-west, on the Upper Ebwy, whilst *Ynyscedwin* and *Ystalyfera* are situate in the extreme south-west, on the Upper Tawe, and virtually belong to the vast manufacturing district depending upon Swansea.

Hay and *Builth*, the latter a curious old place, with narrow, tortuous streets, are the only remarkable towns on the Wye.

RADNORSHIRE (MAESYFED) is an inland county, covered almost wholly with desolate moorlands, and very sparsely peopled. The Wye, which washes the county on the west and south, is the outflow for its watershed, whilst the Lugg and Arrow, rising in Radnor Forest (2,166 feet), flow to the eastward into Herefordshire. The geographical nomenclature is Welsh, but Welsh is now only understood by a few old people at Rhayader and some other remote localities on the Upper Wye.

Presteigne, the county town, is situate in the fertile valley of the Lugg; *New Radnor* lies at the foot of Radnor Forest; and *Knighton* occupies the heights overlooking the river Teme. Offa's Dyke passes through it. *Llandrindod*, in the valley of the Wye, near Builth, enjoys some reputation as a watering-place.





CHAPTER III.

THE CORNISH PENINSULA.

(CORNWALL AND DEVONSHIRE.)



THE peninsula formed almost wholly of the counties of Cornwall and Devonshire constitutes a distinct geographical province, which resembles Wales rather than any other part of England. It is a country of rocks, hills, promontories, and heath-covered ridges. Like the Cambrian mountain region, its rocks belong to the most ancient formations, and a well-marked depression, extending southward from the valley of the Severn, separates it from the rest of England. Cornwall and Wales also resemble each other as respects the origin of their inhabitants, and a like geographical position has resulted in a certain analogy in the historical development of the two peoples. When we speak of the Welsh, our thoughts almost involuntarily turn to the neighbouring people of Cornwall.

Cornwall, by its geological structure, is a sister-land of French Brittany, from which it is separated by the wide mouth of the English Channel. The land on both sides of that arm of the sea is composed of granite, schists, and palæozoic rocks; the shores are indented by deep gulfs and bays, affording facilities for the establishment of great naval stations; and both peninsulas terminate in promontories known as Land's End, or Finistère. Climate, rivers, soil, and inhabitants all resemble each other on these two shores. Cornwall, however, enjoys the advantage of being far richer in mineral wealth than the French peninsula. There is no coal, as in Wales, but rich lodes of copper, zinc, and lead have attracted navigators from the most ancient times, and have proved the principal source of prosperity of the county.*

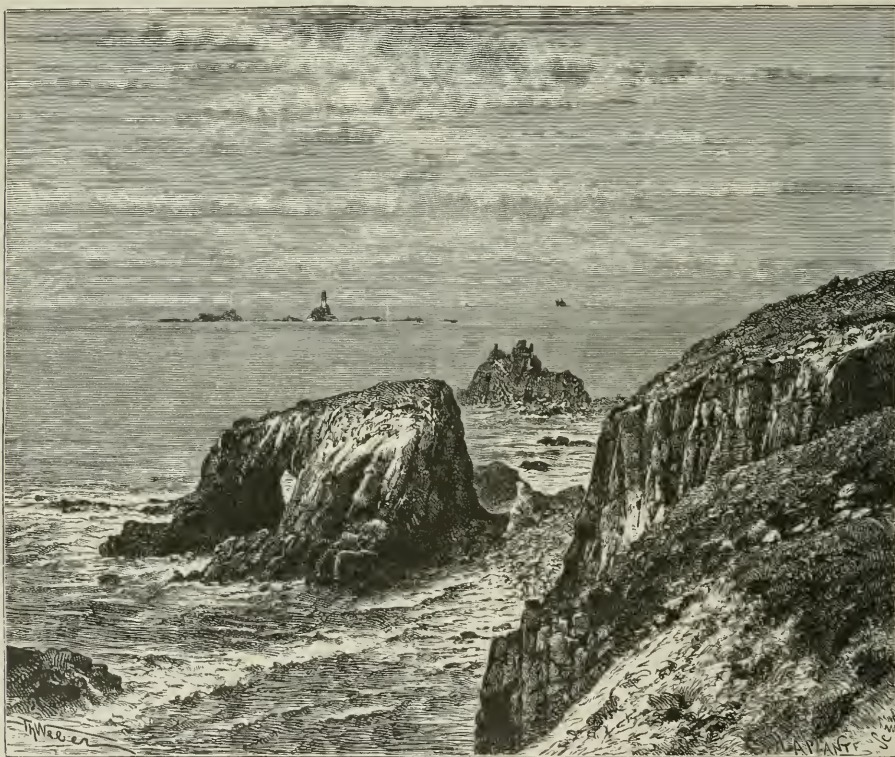
A range of hills of Devonian formation rises to the south of the Bristol Channel, and constitutes, as it were, the root of the peninsula. These hills are separated by valleys, giving birth to the head-stream of the Exe, and terminate in the west, in the table-land of Exmoor, some of the summits of which exceed a height of 1,500 feet. On the north this table-land is intersected by picturesque valleys, and terminates in bold cliffs. From its summits we may witness the continuous onslaught

* Dufrenoy et Élie de Beaumont, "Voyage métallurgique en Angleterre."

of the sea upon the rocks of Ilfracombe, whilst in the south the land gradually slopes down towards the wide semicircular bay bounded by Start Point and the Bill of Portland. Human habitations are few and far between on this plateau, being confined to hamlets and lonely farms hidden away in the hollows. The slopes of the hills are covered with heather or short herbage, whilst their summits are occupied by sepulchral mounds or ancient entrenchments. The Quantock Hills, to the east of Exmoor, are the only part of England where the stag still lives in a wild state.

A second mountain mass, the Dartmoor, rises to the west of the river Exe into the region of pasture, culminating in the Yeo Tor (2,077 feet), and High Wilhays

Fig. 41.—LAND'S END AND THE LONGSHIPS LIGHTHOUSE.



(2,040 feet). The nucleus of this mountain group consists of granite, and the rivers which rise in it diverge in all directions, feeding the Teign and Exe in the east; the Taw and Torridge in the north; the Tamar, or Tamer, in the west; the Tavy, Avon, and Dart in the south. The coast-line projects far to the south, where the spurs of Dartmoor approach it, as if the floods of the ocean had been powerless in their attacks upon the rocks which envelop this nucleus of granite. Start Point, the extreme promontory, is thus named because vessels take their departure from it when about to venture upon the open ocean. Two estuaries bound the uplands which culminate in Dartmoor, viz. that of the Ex in the east, and that of the Tamar, which debouches upon many-armed Plymouth Sound, in

the west. Dartmoor, within its proper limits, covers an area of 200 square miles, and its population is as sparse as that of Exmoor. Many of its valleys, where villages would be sheltered from the cold winds which sweep the heights, are filled with peat and quaking "stables." Piles of stone and the sepulchral mounds of the ancient inhabitants of the country crown the summits of some of the tors, those enormous masses of granite which form the most striking feature of the scenery. In former times most of the slopes were covered with trees, but they have long ago disappeared, and the ancient Dartmoor Forest has become the home of partridges and heath-cocks. Hidden away in one of its wildest recesses lies the small village of Prince Town (thus named in honour of the Prince of Wales, who owns most of the surrounding land), and near it is one of the largest convict prisons in England.

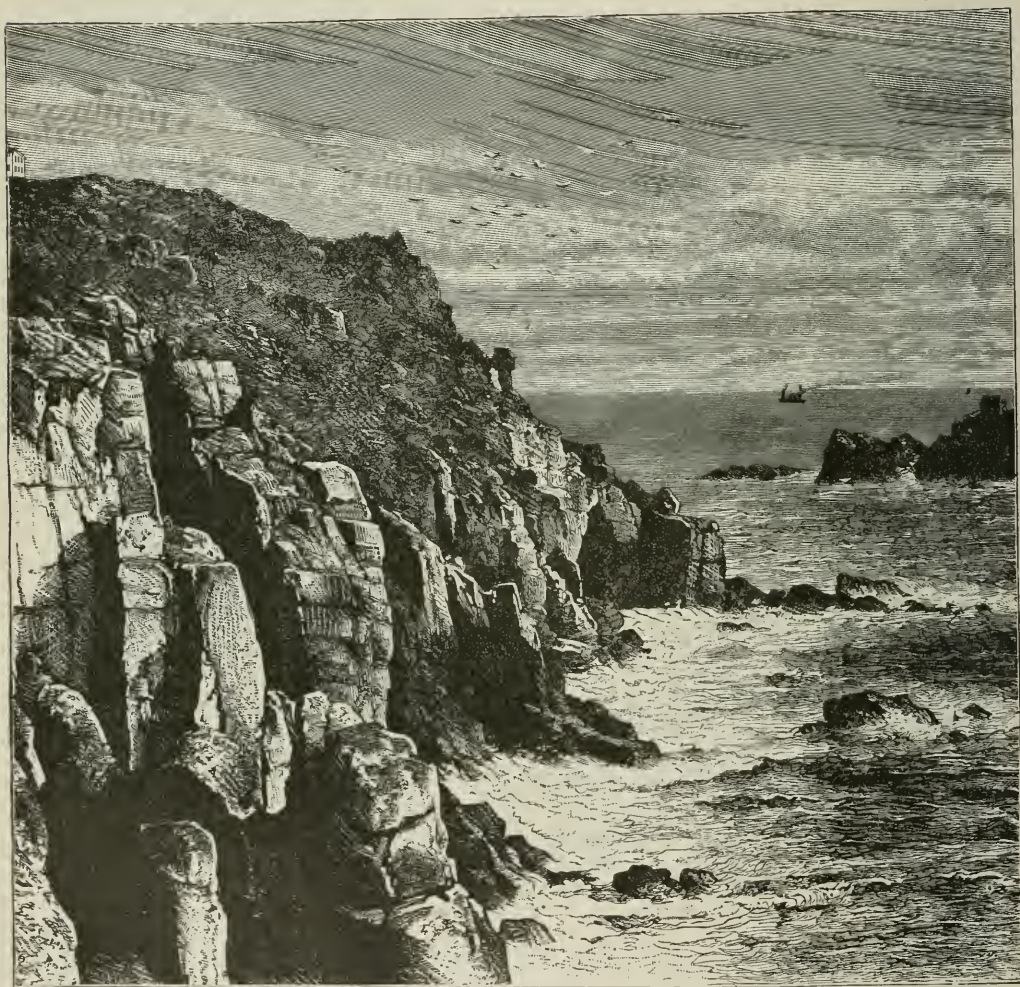
The uplands of Cornwall are far inferior to Exmoor and Dartmoor in elevation. They, too, are dreary treeless wastes, intersected by boggy valleys, and are composed of a great variety of rocks, including limestones and schists, granite and porphyry. From Hartland Point, which bounds Barnstaple Bay in the west, a range of hills and small plateaux stretches south and south-westward to the extremity of the peninsula, its spurs terminating in cliffs or chaotic masses of rock along the sea-coast. The Cornish heights culminate in Brown Willy, 1,364 feet. They are bounded in the east by the valley of the Tamar, and deeply penetrated by the winding estuary of the Fal, which almost severs the bold cliffs forming their western extremity from the body of the peninsula. Lizard Point (224 feet), a bold mass of variegated rock, surmounted by two lighthouses lit by electricity, is the southernmost point of England. Its latitude ($49^{\circ} 57'$) is nearly the same as that of Dieppe, Amiens, and Mayence. A small group of hills to the west of the St. Ives and Mount's Bays terminates in the headlands of Cornwall and Land's End. The Scilly Islands, which lie off these, are now the only vestiges of an extensive tract of land. Tradition tells us that anciently the districts of the Lionesse and Lelothsow, with forty villages, extended from Cornwall to these islands. An old family bears on its coat of arms a horse escaping from the sea, in memory of an ancestor whom the fleetness of his charger saved from a premature death when these districts were swallowed up by the sea.*

The aspect of the headlands varies with the nature of the rocks composing them, and the strength of the winds and waves to which they are exposed. Lizard Point, a mass of compact serpentine, is being gnawed by the waves, which, however, are unable to break it up. Land's End is a mass of tabular granite weathered into huge blocks, piled one upon the other like cyclopean walls. Cape Cornwall, composed of slate, is being split up into laminæ. The moist and saliferous air proves exceedingly destructive, and on many hills the rocks have been broken into quadrangular masses, hardly to be distinguished from the artificial structures raised by the ancient inhabitants of the country. The waves, however, are the principal agents of destruction along the coast. Vast caverns, locally known as "Hugos," have been scooped out at the foot of

* Carew, "Survey of Cornwall."

the cliffs, and into these the waves rush with great noise. Isolated pinnacles, washed by the ocean's foam, rise beyond the line of cliffs, whilst sunken rocks, the remains of ancient promontories, still break the force of the waves, above which they formerly rose. Old chronicles tell us of hills and tracts of coast which have been swallowed up by the sea. Mount St. Michael, in Mount's Bay, rose formerly, like its namesake off the coast of Normandy, in the midst of a wooded plain, which

Fig. 42.—THE "ARMED KNIGHTS," NEAR LAND'S END, CORNWALL.



has disappeared beneath the waves. The church which crowns its summit is referred to in ancient documents as "Hoar Kirk in the Wood," but the famous Mount is now alternately a peninsula and an island, according to the state of the tide. The wind, more especially along the north coast, has likewise aided in changing the form of the littoral region, for it has piled up dunes, or "towans," which travel towards the interior of the country until "fixed" by plantations, or consolidated into sandstone through the agency of the oxide of iron which the

sand contains.* Oscillations of the land appear likewise to have had a large share in the changes witnessed along the coasts of Cornwall and Devonshire. On the beach which the retiring tide uncovers at the foot of the Exmoor cliffs, along the Bristol Channel, may be seen the remains of ancient forests which can have grown only on dry land. The submarine forest of Babbacombe, on the southern coast of Devonshire, between Teignmouth and Torquay, indicates a subsidence of the land to the extent of at least 20 feet. This subsidence, however, was evidently preceded by an upheaval, for ancient beaches have been discovered far inland on the hillsides. One of the caverns of this upheaved coast yielded flint implements, which proves that man was an inhabitant of the country at a remote epoch.† Prehistoric monuments are as numerous in Cornwall as in the Celtic countries of Wales and Brittany. Neither cromlechs, “logans,” nor rocking-stones, sepulchral mounds, nor rings of unhewn stones are wanting to give completeness to this open-air archæological museum of Cornwall.

Lundy Island (466 feet), a mass of granite 920 acres in extent, off Barnstaple Bay, marks the former limit of the coast in that direction, whilst the low archipelago of the Scilly Islands may be looked upon as an outlier of the Cornish peninsula. Only five out of the twenty-four islands of this archipelago exceed 250 acres in area, and they alone are inhabited.‡ Samson, which had a few inhabitants in 1851, has since been abandoned, not because its inhabitants wished it, but by order of the despotic proprietor of these islands. The inhabitants of Samson, as well as the poor residing on the other islands, were transferred by him to the mainland, and his tenants were ordered to keep only one son with them, to be supported by the land. Those amongst them who had numerous families were obliged to send their sons to sea or to the ship-yards.§ The population decreases from decade to decade, but the inhabitants have grown considerably in wealth. The people of Scilly, though very small as far as numbers go, are nevertheless an interesting subject for study, for amongst them the much-vaunted theory of an “intelligent despotism” has been carried out with method and to perfection for nearly half a century.||

The Scilly Islands can boast of some of the finest market gardens in England, and they are largely indebted to steam navigation for their prosperity, for by its means they are able to supply the London markets with early vegetables. The warm and moisture-laden atmosphere secures the gardeners of the Scilly Islands, and of the neighbouring coast of the Cornish peninsula, against winter frosts. But though the climate is highly favourable to the growth of foliage, it does not suit fruit. Even plums and apricots ripen only in exceptionally dry seasons. On an average there are only six days of real calm in the year. The wind blows almost without interruption from one point of the compass or the other, bringing

* Alph. Esquiros, “L’Angleterre et la vie Anglaise.”

† Pengelly, *Reader*, Nov. 19, 1864.

‡ St. Mary’s, Tresco, St. Martin’s, St. Agnes, Boyer	Area. 2,330 acres.
Nineteen uninhabited islands	289 „

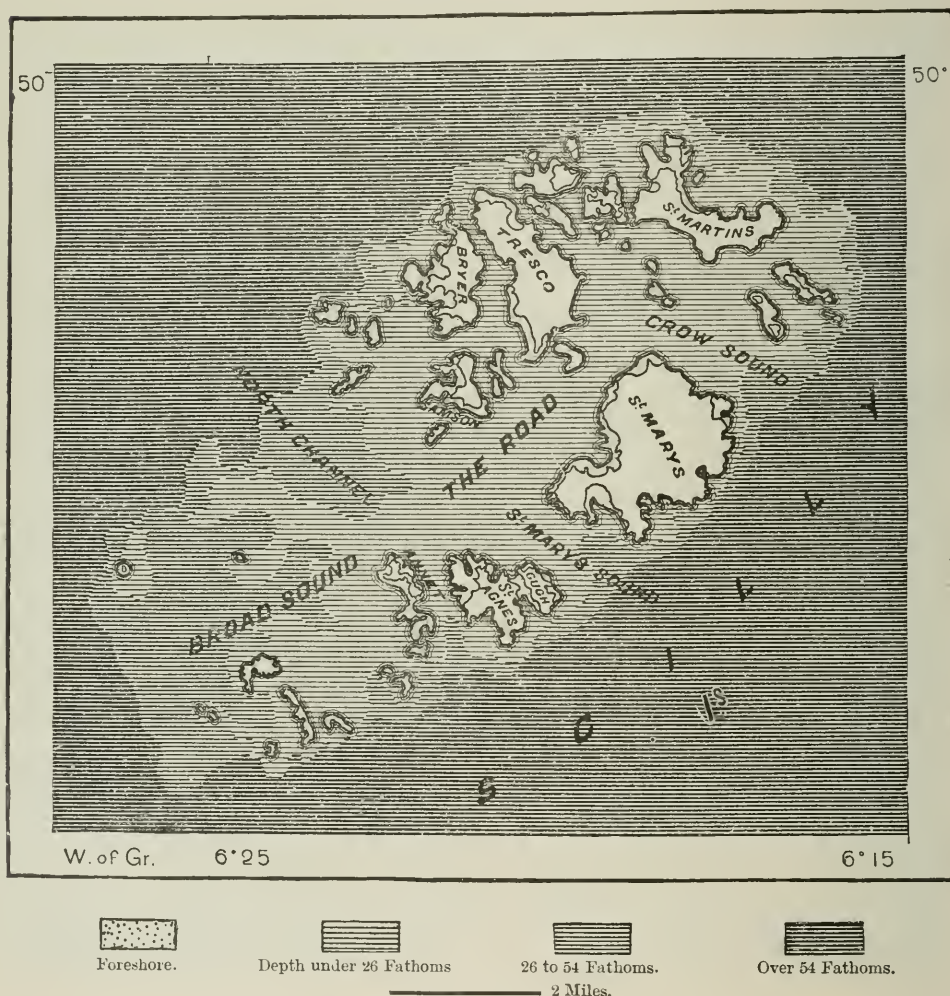
§ Population (1851), 2,627, (1861) 2,431, (1871) 2,075.

|| Froude, “Uses of a Landed Gentry” (Paper read at the Edinburgh Philosophical Institute).

with it fogs, drizzling rain, or heavy showers. Storms are of frequent occurrence, and the number of shipwrecks is nowhere larger. The currents which meet at the Scilly Islands often carry vessels out of their true course, and during fogs cause them to run upon sunken rocks. It was here that, in 1707, the most disastrous shipwreck of modern times occurred. An entire fleet, commanded by Sir Cloudesley Shovel, was thrown upon the rocks, and two thousand human souls passed together

Fig. 43.—THE SCILLY ISLANDS.

Scale 1 : 170,000.



into eternity. An old saying will have it that out of every ten natives of the Scilly Islands nine perish in the sea; but thanks to lighthouses, lightships, fog signals, life-boats, and a change in the mode of life of the inhabitants, this, happily, is no longer true.

The Cornish peninsula is quite as much a land of mist and rain as are the Scilly Islands. The annual rainfall is nowhere less than 30 inches; in most localities it exceeds 3 feet, and on the western slopes of Dartmoor it rises to

80 inches. At Tavistock it rains almost incessantly, showers accompanying the wind from whatever quarter it blows.

Many geographers have identified the Scilly Islands with the Cassiterides of the ancients, simply because of their vicinity to the Cornish mines. But these granitic islands in reality contain only feeble traces of metal, while the rocks of the neighbouring mainland abound in underground treasures, which have certainly been explored from a period anterior to Cæsar's expedition. Old mines dating back to that time can still be traced, and the detached, almost insular, rock masses of Cornwall are undoubtedly the *Æstryrnides* or *Cassiterides* visited by the traders of Phœnicia and Carthage. During the Roman epoch the tin of Cornwall was sent across Gaul to Marseilles.

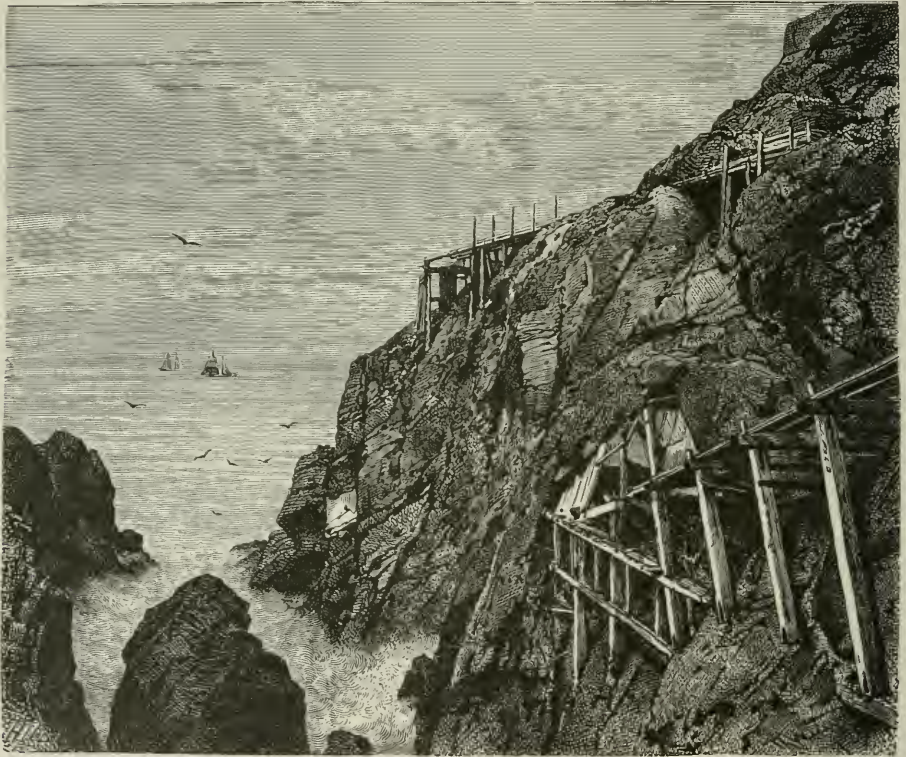
The lodes of Cornwall are principally of copper and tin, sometimes separately, sometimes in combination. The richest lodes of tin have been discovered in the environs of Penzance, near the extremity of the peninsula, whilst the most productive copper mines are some distance inland, more especially around Redruth. There are a few mines which, after having ceased to yield one metal, are worked for the sake of the other. In some instances the ores are exceedingly rich, and near the coast may be seen rocks dyed green by an efflorescence of copper ; * but as a rule the Cornish ores are very poor, containing scarcely 2 per cent. of tin, or from 3 to 4 per cent. of copper. Their value depended altogether upon the scarcity of the metal they yielded, and since the discovery of rich ores in the United States, Bolivia, Australia, and the Sunda Islands, it has decreased very much. In their search after the precious ores the valiant miners of Cornwall have sunk pits and excavated galleries which rank amongst the curiosities of England. Powerful pumping-engines have been brought into requisition to empty the mines of the water which invades them through fissures in the rocks. But in the case of mines many hundred fathoms in depth artificial means for raising the water do not suffice, and an adit conveys it directly to the sea. The underground workings in the mining districts of Gwennap and Redruth reach to a depth of 1,750 feet below the surface, the galleries extend 60 miles, the adit is 7 miles long, and sixty pumping-engines daily remove 100,000 tons of water, being at the rate of more than a ton every second. The timber buried in the mines of Cornwall is supposed to be equivalent to a pine forest a hundred years old, and covering 140 square miles.

Botallack promontory, near Cape Cornwall, one of the most picturesque rocks on the coast, is more especially curious on account of the copper mine which is hidden in its bowels. Almost severed from the mainland by a wide fissure, that enormous block of rock, 200 feet in height, is reached by narrow bridges constructed at a giddy height. Spiral railways wind round its flanks, and its pinnacles terminate in smoking chimneys. The workings are continued for 1,200 feet under the bed of the Atlantic, and the miners can feebly hear the noise made by the pebbles rolling up and down the beach. In the neighbouring mine of Wheal Cock the lode has been followed to the very bed of the sea, and the hole

* Carus, "England and Scotland in 1844."

plugged up, to prevent its irruption. The noise of rolling pebbles and of the surf becomes terrific when we penetrate this mine, and on a tempestuous day the uproar is sufficient to cause even the hardest miner to shudder. Elsewhere the old miners had the imprudence to follow a lode within so short a distance of the bed of the sea, that the latter broke through the roof of the mine and flooded a portion of its galleries. The hole, however, was fortunately stopped up by means of a plank platform covered with turf and weighted with stones. Another copper mine to the south of Penzance is often cited as an instance of the enterprise of the Cornish miners. It was commenced towards the close of the last century by a work-

Fig. 44.—THE BOTALLACK MINE.



ing miner, on a part of the beach which was covered twice daily by the advancing tide. Under these circumstances it was only possible to work for a few hours of the day. But when the mine had been enclosed by a wooden fence and joined to the land by a plank bridge, it became possible to work it continuously, and for a number of years the "Wherry" yielded considerable quantities of copper. One day, however, during a storm, a vessel anchored in the neighbourhood, dragged her anchor, and was helplessly driven upon the wooden enclosure. The sea then once more invaded the mine, which has not since been worked.*

* Dufrénoy et Élie de Beaumont, "Voyage métallurgique en Angleterre."

But though the miners of Cornwall be ever so persevering, and take advantage of every improvement in machinery, the cost of coal and timber will not enable them to compete with other mining countries whose ores are richer. The Stannary Parliament, which used to discuss the business connected with the mines, meets no longer. Its last meetings took place in Devonshire in 1749, in Cornwall in 1752. Many of the miners have sought new homes beyond the Atlantic, and in proportion as the wealth of the mines diminishes, the country population decreases in numbers, and the towns grow larger. Quarries and china-clay diggings, though of importance, are not sufficiently so to compensate for the mines that had to be abandoned.* There remain, however, many sources of wealth, including pilchard and mackerel fisheries; market gardens, from which London draws a large supply of early vegetables; and productive fields, fertilised by the calcareous sand which is spread over them. The rocks of Cornwall are poor in carbonate of lime, resembling in this respect the rocks of Brittany, but there is an abundance of marine organisms, by which the lime contained in the water of the ocean is secreted, and the sand along the shore converted into a valuable fertiliser. For centuries this sand has been utilised to increase the productiveness of the soil. It is more especially made use of in the vicinity of the little bay of Padstow, where about 100,000 tons of it are annually spread over the fields, this being about one-fifth of the total quantity applied in this manner throughout Cornwall and Devonshire.†

The inhabitants of the Cornish peninsula offered a long-continued resistance to the Saxon invaders, and in many localities they still present peculiar features. Black hair, sallow complexions, short and broad skulls, are met with more frequently than in other parts of England. Many of the women on the south coast, between Falmouth and Lizard Point, are of a southern type, which it has been sought to trace to an immigration from Spain, and indeed Tacitus writes of Iberians who settled in the country. A few vestiges of a division into hostile clans survive to the present day. The old language, however, a sister tongue of that of Wales, lives now only in the geographical nomenclature. For two centuries it had ceased to be commonly spoken, and the last woman able to express herself in the original language of the country died in 1778 at Mousehole, near Penzance. Enthusiastic philologists have raised a stone to her memory. A few words of Cornish have been preserved in the local dialect. Cornish literature, which has been especially studied by Mr. Whitley Stokes, is, he says, limited to a glossary of the twelfth century, and a number of "mysteries" of later date, for the most part adapted or translated from the contemporaneous literature current during the Middle Ages. A society has been formed in Cornwall for the purpose of publishing the ancient manuscripts. The numerous popular legends, which still form the stock of many a simple story-teller in the remote villages of Cornwall, have been collected and published in various English works.

* In 1844 the mines yielded 152,970 tons of copper ore; at present they yield scarcely 50,000 tons. Of china clay, or kaolin, about 150,000 tons are annually exported.

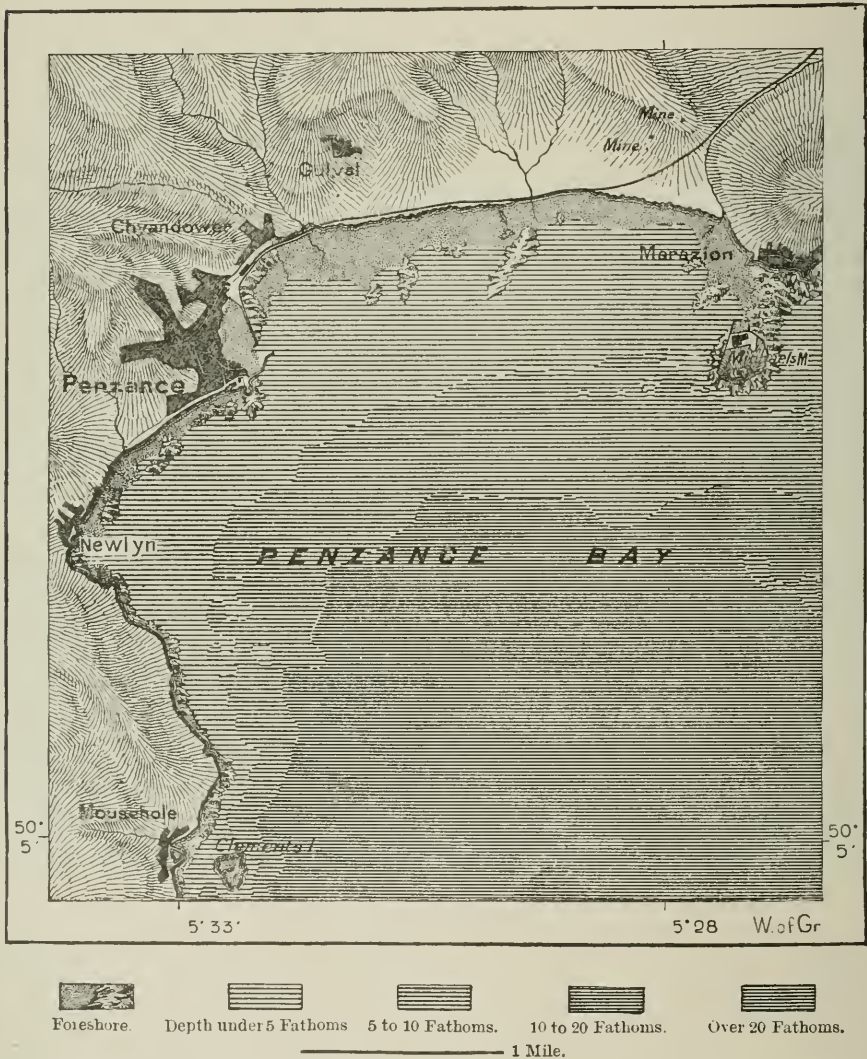
† Delesse, "*Lithologie du fond des mers.*"

TOPOGRAPHY.

CORNWALL, the extreme south-western county of England, terminates in the rocky promontories of Land's End and Lizard Point. The greater portion of its area is occupied by wild and barren moorlands, surmounted by bosses of granite

Fig. 45.—PENZANCE.

Scale 1 : 505,000.



and intersected by valleys with boggy bottoms. Mining, quarrying, fishing, and the cultivation of early vegetables constitute the principal sources of wealth.

Penzance is admirably seated upon the shore of a fine semicircular bay, bounded on the east by the bold serpentine rocks of Lizard Point, and on the west by the heights which extend thence to the Land's End. It is the south-westernmost town

in England, and is much frequented by visitors, who delight in its equable climate and luxuriant vegetation, and to whom bold cliffs of granite or serpentine, quarries and mines, and magnificent cromlechs, stone circles, logans, &c. (see page 30), present objects of attraction. Penzance is the centre of an important mining, fishing, and agricultural district. Within a radius of 7 or 8 miles of it are situated some of the most celebrated "setts" in the county of Cornwall, including Botallack and its neighbour Wheal Owles, which hardly yields to it in reputation. The harbour is formed by a breakwater, and defended by batteries. The town has smelting-houses, and works where serpentine is fashioned into cups and vases. It exports early vegetables and fish. Penzance was the birthplace of Sir Humphry Davy, to whom a monument has been erected, and is justly proud of the scientific collections accumulated by its geological, natural history, and antiquarian societies. Porthcurno, near Penzance, and other creeks in its vicinity, are the points of departure of three submarine cables, which connect England with the Spanish ports of Santander and Vigo, and the Portuguese village of Carcavellos, near Lisbon, whence the cable is carried on to Gibraltar and the Mediterranean. In addition to these a submarine cable connects Penzance with a lightship 50 miles to the south-west, which hails all passing ships and places them in communication with their owners in London. *Madron* and *Ludgran* are ancient market towns, within a couple of miles of Penzance, but are exceeded in interest by the pretty village of *Marazion*, opposite the pyramidal *St. Michael's Mount*, with which it is connected by an ancient causeway, flooded eight hours out of every twelve. The Mount rises to a height of 95 feet, and is crowned by an ancient castle, partly in ruins, commanding a magnificent prospect.

Helston, on the Looe, which enters the sea 9 miles to the north-east of Lizard Point, depends upon mines and agriculture for such prosperity as it enjoys. Rounding the promontory just named, and its quarries of serpentine, we reach the estuary of the Fal, and with it the important town of *Falmouth*, beautifully seated on the shore of a magnificent harbour, bounded in the south by the conical promontory surmounted by Pendennis Castle, and protected by a breakwater. The harbour of Falmouth is one of the finest in England, capable of sheltering an entire fleet. The town itself is mean, but its environs abound in picturesque scenery. *Penryn*, on an inlet of Falmouth Harbour, is known for its granite quarries. *St. Mawes*, opposite Falmouth, boasts an ancient castle erected in the time of Henry VIII. Proceeding up the beautiful haven at the entrance of which lie Falmouth and St. Mawes, and which is known as Carrick Roads, we reach *Truro*, the finest town in Cornwall, and recently created an episcopal see. Truro has smelting-houses and paper-mills, and exports the ores obtained from the neighbouring mines. Like Penzance, it can boast of its museum and scientific institutions. It was the birthplace of Richard and John Lander, the African travellers. A cathedral of noble proportions is being raised.

Rounding Dodman Head, we reach *Mevagissey*, one of the principal seats of the pilehard fishery, and farther north the small town of *Charlestown*, which is the port of *St. Austell*, known for its china-clay diggings and potteries. *Par*, on the

northern side of St. Austell Bay, has a small harbour defended by a breakwater, and exports china clay and iron ore from the neighbouring mines of *St. Blazey*.

Fowey, at the mouth of the estuary of the same name, has an excellent harbour, defended by forts and batteries, and much frequented. Three hundred years ago Fowey was the most important maritime city in the south-west of England. The site of Falmouth was at that time occupied by a solitary house, whilst Fowey

Fig. 46.—FALMOUTH AND TRURO.

Scale 1 : 175,000.



Depth under 10 Fathoms.

Depth over 10 Fathoms.

2 Miles.

furnished Edward III. with forty-seven vessels for the siege of Calais. It was a noted place for pirates, and its mariners occasionally even fought vessels from other English ports, including those of Rye and Winchelsea. The town was burnt by the French in 1457. *Lostwithiel* is higher up on the Fowey, which yields excellent trout and smelts.

East and *West Looe* are two old-fashioned fishing villages at the mouth of the

river Looe, which affords access to the old mining town of *Liskeard*. Granite and ores are the principal articles of export.

The north-western coast of Cornwall is far poorer in good harbours than the south-east coast. The most important is *St. Ives*, the principal seat of the pilchard fishery. It is a quaint old town at the entrance to a fine bay, on which is also situated the small port of *Hayle*. Both export the produce of the neighbouring mining district, the centres of which are *Redruth*, *Camborne*, and *Phillack*.

New Quay, farther north, exports a little iron ore. *Padstow*, at the mouth of the estuary of the Camel, has an indifferent harbour, but is of some importance on account of its fisheries and coasting trade. It is a very ancient, but by no means an attractive place. Following the Camel upwards, we reach *Bodmin*, the county town, but not otherwise remarkable, and *Camelford*, near the head of that river. In its neighbourhood are the slate quarries of *Delabole*. Once more resuming our voyage along the cliff-bound coast, we pass the castle of *Tintagel* on its lofty rock, and reach *Bude Haven*, at the mouth of a canal, by which tons of sand containing carbonate of lime are transported inland.

The only place of importance in the interior of the county not yet noticed is *Launceston*, with a fine Gothic church and a ruined castle, on the Attery, a tributary of the Tamar, which separates Cornwall from Devonshire.

DEVONSHIRE is noted throughout England for its picturesque scenery, its rich pasture-lands, orchards, and copper mines. The north of the county is occupied by the treeless moorlands of Exmoor, the centre by the equally sterile Dartmoor Forest; in the east the Black Downs extend into the county from Dorsetshire; but the south is rich in orchards, and hence is known as the "Garden of Devonshire."

Plymouth, with its sister towns of *Devonport* and *Stonehouse*, has grown into the greatest centre of population on the south-west coast of England. No other town has been so frequently mentioned in connection with expeditions of war and discovery. It was from Plymouth that Sir Francis Drake started in 1577, and Cook in 1772. Although a town of war, girdled by fortifications, with crenellated walls occupying every point of vantage, Plymouth is nevertheless a beautiful town. From the surrounding heights and from the walks which line the quays we look in all directions upon bays and inlets of the sea studded with vessels. Here steamers glide swiftly from shore to shore; there sailing vessels are anchored in the roadstead; farther away we look upon men-of-war and huge hulks towering above the water; whilst on the open sea, which glistens beyond the break-water, may be seen passing vessels with swollen sails. Right opposite to the town rise the heights of Mount Edgecumbe, clad with fine trees, divided by broad avenues into picturesque masses. When the sun lights up the landscape we might almost fancy ourselves transported to some Italian city on the Mediterranean seaboard, the delusion being heightened by the clustering pines. The magnificent roadstead of Plymouth, known as the "Sound," covers 1,800 acres, and receives the tribute of the rivers Plym and Tamar, the estuary of the first forming the harbour of Catwater on the east, and that of the latter the Hamoaze on the west. The harbour was long exposed to the heavy sea which

rolled into the Sound with the southerly gales, often causing great damage. To remedy this defect a breakwater, 5,100 feet in length, has been constructed across its middle. This stupendous work was commenced in 1812 by Rennie, and completed in 1846 at a cost of nearly £2,000,000 sterling. About two million and a half tons of blocks of coarse marble have been employed in its construction. It is continually requiring repairs, for during severe gales the

Fig. 47.—PLYMOUTH.

Scale 1 : 268,000.



blocks composing it, notwithstanding their weighing between 60 and 80 tons, are often forced from their positions, whilst the destructive work of the pholades, or pittocks, is going on at all times, converting the solid rock into pumice-like masses. More than once this barrier has been broken through by the sea, and it is on record that a helpless vessel was washed over the breakwater by the infuriated waves, and landed in the inner Sound.* Experts assert that the height of the breakwater

* Carus, "England and Scotland in 1844."

above the level of the sea is insufficient, in consequence of which the waves wash over it during gales, transmitting their undulatory movement as far as the inner harbour.*

Plymouth, in addition to its breakwater, can boast of other remarkable engineering works, testifying to the spirit of enterprise possessed by Englishmen. The Royal William victualling-yards in the modern town of Stonehouse cover an area of 14 acres at the extremity of the peninsula which separates the Sound from the harbour of Hamoaze. Devonport, which is still confined within a bastioned wall, possesses one of the great dockyards of the kingdom, whilst far out at sea the proximity of Plymouth is revealed by a lofty lighthouse, boldly raised upon a rock in mid-channel. Shipwrecks were formerly frequent on the group of the Eddystone rocks, one of which is occupied by the lighthouse. The first structure was erected in 1696. It was of wood, and a storm in 1703 completely washed it and its architect away. Another lighthouse was built, 1706—1709, also of wood, but was burned in 1755. The third structure was constructed by Smeaton, 1757—59. It is noted for its strength and the engineering skill it displays, and rises to a height of 85 feet, its light being visible at a distance of 13 miles. This structure still stands, but it, also, is doomed to disappear, for the rock it occupies is slowly, but surely, being undermined by the waves. The new lighthouse, now in course of construction, will rise to the stupendous height of 130 feet, and its light will thus be placed beyond the reach of the waves.

Plymouth, with its sister cities, depends for its prosperity in a large measure upon the Government establishment of which it is the seat. Its coasting trade is extensive, but not so its commerce with foreign countries. Ship-building and the refining of sugar are the principal industries. Amongst the public buildings the most remarkable are the new Guildhall, the Athenæum, with a valuable museum, and the public library. *Plympton*, a small market town to the east of Plymouth, was the birthplace of Sir Joshua Reynolds.

Proceeding up the Tamar, we pass beneath the wonderful Albert Suspension Bridge, which spans the river at a height of 260 feet, and has a length of 2,240 feet. It connects the Devonshire side of the river with *Saltash*, a small town in Cornwall, noted for its acres of vineries, in which tons of grapes are grown every year. Higher up on the Tamar we reach *Morwelham Quay*, the port of the mining town of *Tavistock*, with which it is connected by a canal, running for a considerable distance through a tunnel. Tavistock, on the Tavy, and at the western foot of Dartmoor, has copper and lead mines. About 7 miles to the east of it lies the village of *Prince Town*, with a convict establishment.

Salcombe River, the sinuous estuary of the Avon, penetrates far into the southernmost portion of Devonshire. *Salcombe Regis* occupies a magnificent position near its mouth. Its equable temperature has earned for it the epithet of the "English Montpelier." Here oranges and lemons ripen in the open air.

Rounding Start Point, we reach the estuary of the river Dart, the entrance to which is commanded by the ancient town of *Dartmouth*. Its houses rise tier

* Cialdi, "On Wave Action." *Revue maritime et coloniale*, January, 1876.

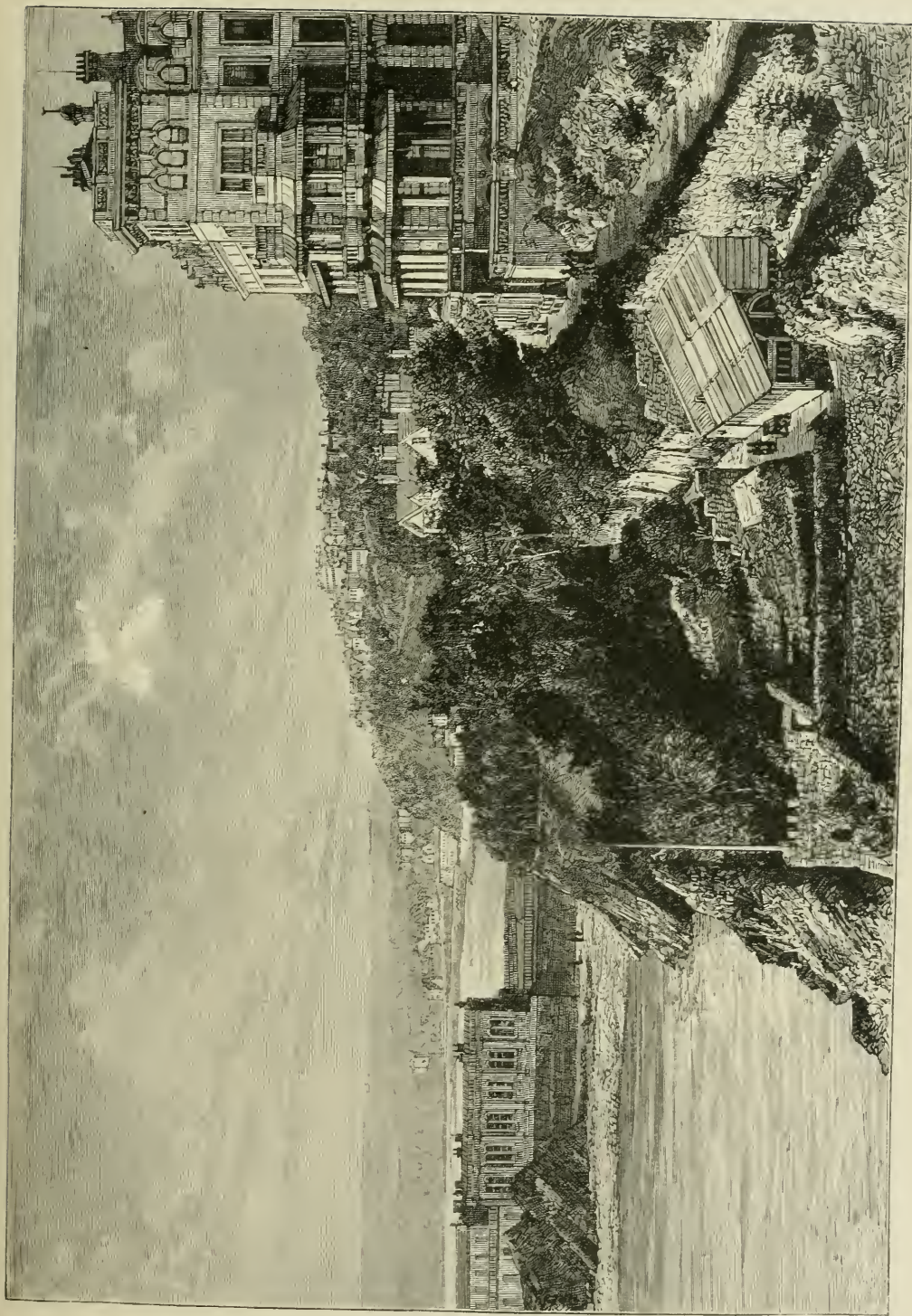
above tier on the hillsides. Dartmouth has a convenient harbour. It was the birthplace of Newcomen, the improver of the steam-engine. Higher up on the Dart rises *Totnes*, with the ruins of an ancient castle, and still farther inland is *Ashburton*, a mining town, almost in the centre of the cider district of South Hams.

Several towns of note are seated upon the shore of Tor Bay. *Brixham*, on its south side, is the principal fishing town of Devonshire, about two hundred trawlers

Fig. 48.—SMEATON'S EDDYSTONE LIGHTHOUSE.



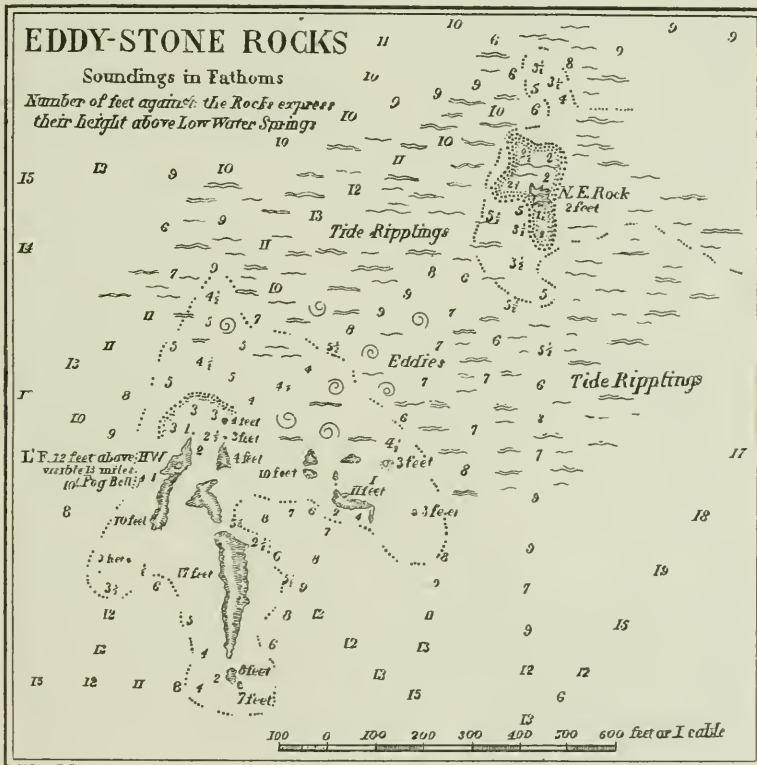
belonging to its port. Its harbour is protected by a breakwater. It was here that William of Orange landed in 1688. *Paignton*, in the centre of the bay, has a small harbour. *Torquay*, on the northern side of the bay, rises in terraces above the magnificent quay, whilst the surrounding heights are studded with villas. It is the most important seaside resort on the south coast of England to the west of Brighton, its equable climate and the shelter afforded by the surrounding heights also attracting a large number of persons suffering from consumption. The influx of bathers and invalids has caused the population of



TORQUAY, AS SEEN FROM LAND'S END.

the town to increase rapidly, and has given rise to a considerable local trade, its small port now being frequently crowded with shipping. Kent's Hole, near Torquay, and a similar cavern near Brixham, are remarkable on account of the stone implements, human remains, and bones of animals which have been found in them. The fossil fauna of these underground galleries embraces forty-six or forty-seven species of animals, including the bear, otter, fox, wolf, hyena, panther, stag, ox, pig, rhinoceros, and elephant, and, amongst the smaller animals, the mouse.* Flint implements, which first attracted the notice of men of science, were discovered between 1825 and 1841. Kent's Hole has been known for centuries, and, accord-

Fig. 49.—EDDYSTONE ROCKS.
From an Admiralty Chart.



ing to local tradition, it owes its name to a falcon which flew into it and reappeared in the county of Kent.

St. Mary Church, a couple of miles to the north of Torquay, has marble and terra-cotta works. *Teignmouth* has marble works, and exports potter's clay and cider, besides granite from the Heytor quarries. *Newton Abbot* and *Woolborough* lie 5 miles inland, whilst *Borey Tracey*, known to geologists for its lignite coal beds and diggings of potter's clay, occupies the centre of a valley which joins that of the Teign on the east. *Dawlish*, a short distance to the north of Teignmouth,

* MacEnergy; Pengelly, "Kent's Hole;" Boyd Dawkins (*Journal of the Geological Society*, vol. xxv. 1869).

at the foot of steep cliffs, has grown from a small fishing village into a fashionable watering-place.

Exmouth commands the entrance to the estuary of the river Exe. It is charmingly situated, and is much resorted to by sea-bathers. Ascending the Exe, we reach *Topsham*, which has ship-yards and rope-walks, and is connected by a ship canal, 15 feet deep, with the city of Exeter. The Exe is said to have been formerly navigable for sea-going vessels as far as the quays of Exeter, but the municipality

Fig. 50.—TOR BAY.

Scale 1 : 120,000.

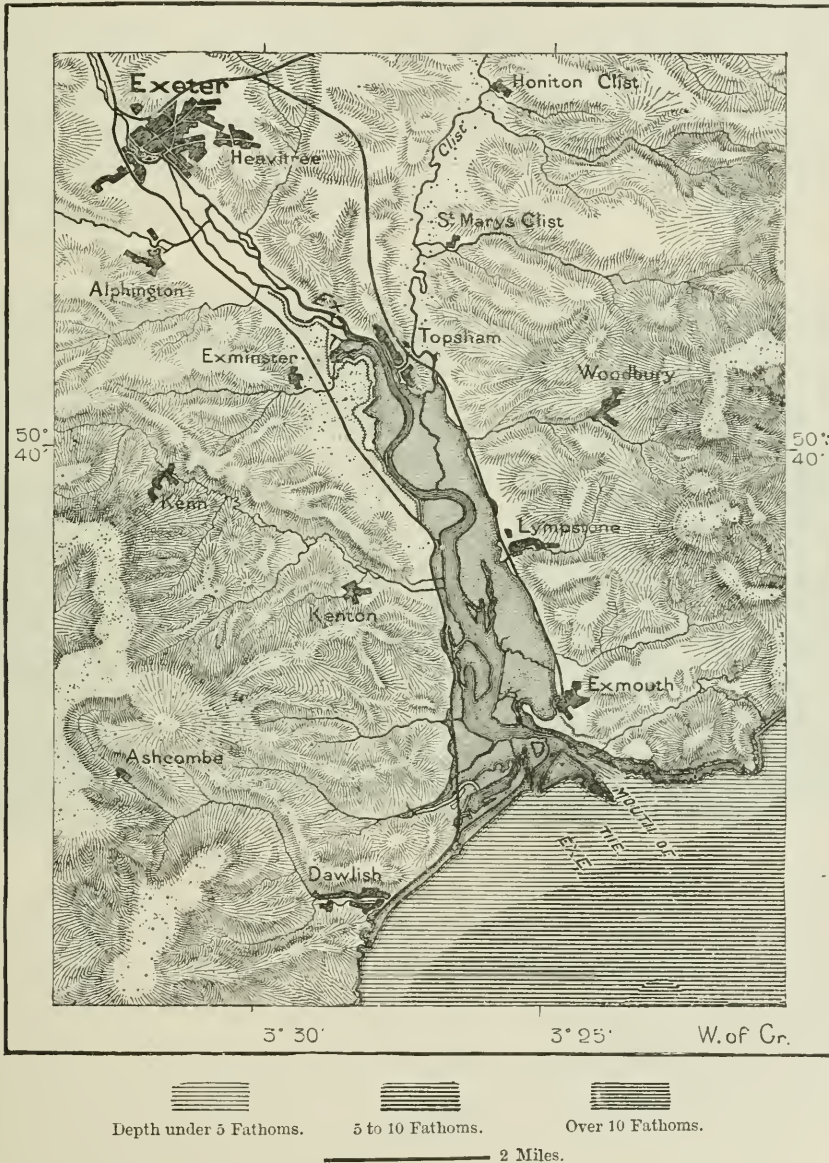


having offended the neighbouring nobility by forbidding inhabitants of the town to appear in the livery of a lord without previously obtaining the license of the mayor and his council, an Earl of Devon had the water dammed above Topsham, and thus caused the river to silt up rapidly. The village of Topsham, which was his property, then became the port of the whole district. It is, however, far more reasonable to suppose that the Exe became silted up through the slow operation of natural agencies.

Exeter is proudly seated upon a steep hill on the left bank of the Exe. This ancient capital of the West Saxons, whose resistance to the Normans was broken by the massacre ordered by William the Conqueror in 1085, still possesses several remarkable mediæval buildings, including the remains of the Norman castle of

Fig. 51.—EXETER AND THE ESTUARY OF THE EXE.

Scale 1 : 250,000.

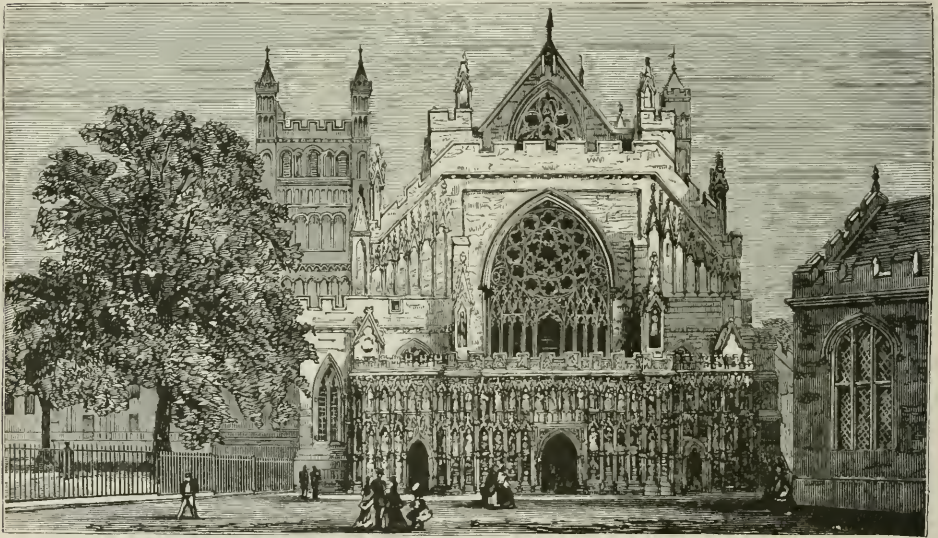


Rougemont, portions of the old city walls, a Guildhall of the sixteenth century, and, above all, its cathedral. This edifice was erected between 1107 and 1206; it boasts of fine stained-glass windows, curious paintings on stone, and beautiful wood carvings, and is the only church in England which has transeptal towers. Amongst

modern buildings the most striking is the Albert Museum. In the beginning of the sixteenth century Exeter was the centre of the English woollen industry, since transferred to Yorkshire. *Crediton*, 7 miles to the north-west, on the river Creedy, a tributary of the Exe, lies in the centre of a prosperous agricultural district. The parish of *Sandford*, near it, is said to be the most fertile in all Devonshire. *Tiverton*, a place of some importance on the Upper Exe, engages in the lace trade and net-making.

Sidmouth and *Axmouth* are favourite watering-places to the east of the Exe. Sidmouth, in a narrow glen formed by the river Sid, occupies a site of striking beauty, red cliffs of Devonian sandstone presenting a charming contrast to the white sand of the beach and the greenish floods of the English Channel. Axmouth, on the other hand, has become famous through a landslip which occurred in December, 1839, and has formed the subject of careful observation on the part of Sir Charles

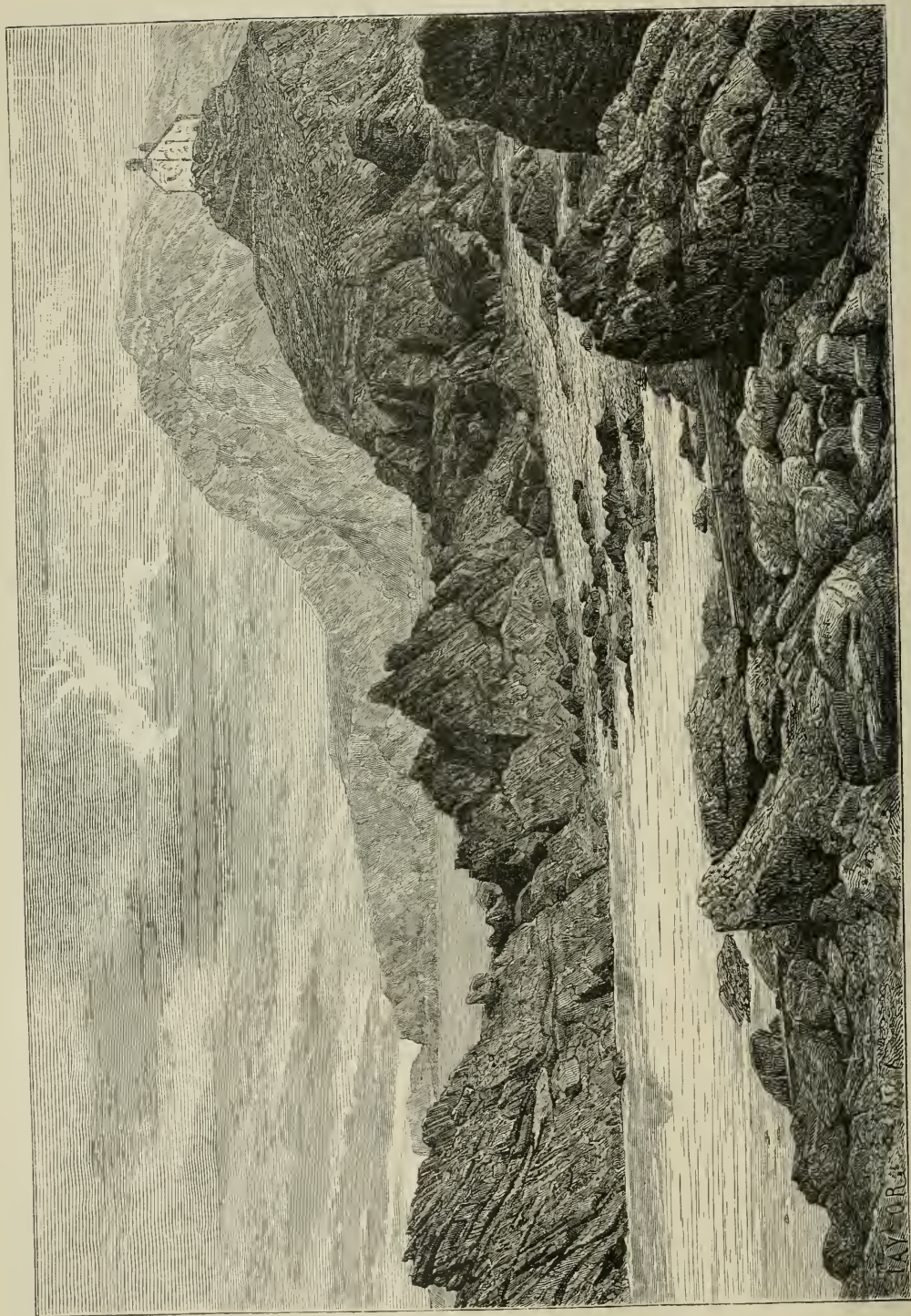
Fig. 52.—EXETER CATHEDRAL.



Lyell and other geologists. A mass of chalk and sandstone, resting upon a bed of sand, had become thoroughly saturated with water. The sand being unable any longer to support the superincumbent mass, the whole of it slid down upon the beach, producing a rent 4,000 feet long, 250 feet wide, and 100 to 150 feet deep.

Honiton and *Ottery St. Mary*, both on the river Otter, and *Colyton*, on the river Axe, are the principal seats for the manufacture of pillow lace. Honiton is noted for its cleanliness, Ottery St. Mary for its church, which is an imitation of Exeter Cathedral on a reduced scale, and Colyton for its flint-built, slate-covered houses. *Arminster*, on a hill overlooking the Axe, has a famous old church, and was formerly noted for its carpets, but their manufacture has been discontinued since 1835.

Barnstaple is the principal town in North Devonshire. It lies in a verdant valley at the head of the estuary of the Taw, has ship-yards, potteries, and a few



ROCKS AT ILFRACOMBE.

other manufactures, and a port accessible to coasting vessels. It is much frequented by tourists on their way to the delightful watering-places of *Ilfracombe* and *Lynmouth*, at the foot of the cliffs and escarpments in which Exmoor Forest terminates towards the Bristol Channel. *South Molton*, in the interior of the county, to the south-east of Barnstaple, has iron mines. *Bideford*, on the estuary of the Torridge, which is tributary to that of the Taw, possesses greater facilities for navigation, its quays being accessible to vessels of 500 tons burden. *Northam* lies to the north of it, on the estuary. *Westward Ho!* on the open ocean, to the west of it, is rising into favour as a watering-place. *Torrington*, where leather gloves are made, is the only town of any importance on the Torridge above Bideford.





CHAPTER IV.

THE BASIN OF THE SEVERN AND THE BRISTOL CHANNEL.

(SHROPSHIRE, WORCESTERSHIRE, WARWICKSHIRE, HEREFORDSHIRE, GLOUCESTERSHIRE, SOMERSETSHIRE.)

GENERAL FEATURES.



THE upper watershed of the Severn lies within Wales, but no sooner has that river become navigable than it crosses the boundary into England, and, sweeping round to the south and south-west, it irrigates the gently inclined plains bounded by the distant escarpments of table-lands. The six shires whose boundaries approximately coincide with those of the basin of the Severn, including therein the Avon and other rivers tributary to the Bristol Channel, are distinguished, upon the whole, for gentle undulations, fertility of soil, beauty and variety of scenery, and facility of communication, and they have consequently attracted a large population.

Still, along the Welsh boundary there rise a few hills which are almost entitled to be called mountains. A range of heights, rising to an altitude of 1,250 feet, occupies nearly the centre of the wide curve formed by the Severn. This is the Long Mynd, which is of very humble aspect, if compared with the Snowdon and other mountain giants of Wales, but famous in the geology of England as being the "foundation-stone," as it were, of the whole country, for it was around this small nucleus of Cambrian rocks that the more recent sedimentary strata were deposited.* The Long Mynd and other ranges in that part of Shropshire are joined on the one side to the hills of Wales, whilst in the north-east they extend to the Severn, and may be traced even beyond that river, where the Wrekin (1,320 feet) rises almost in the centre of the county. The view from its summit is superb, extending from Derbyshire to Snowdon. The range of the Clee Hills (1,788 feet), somewhat more elevated than the Long Mynd, stretches to the southward, and bounds the valley of the Severn in the west. It is continued in the Malvern Hills (1,396 feet), famous for the diversity of their scenery, the purity and salubrity of their air, their variety of vegetation, and the

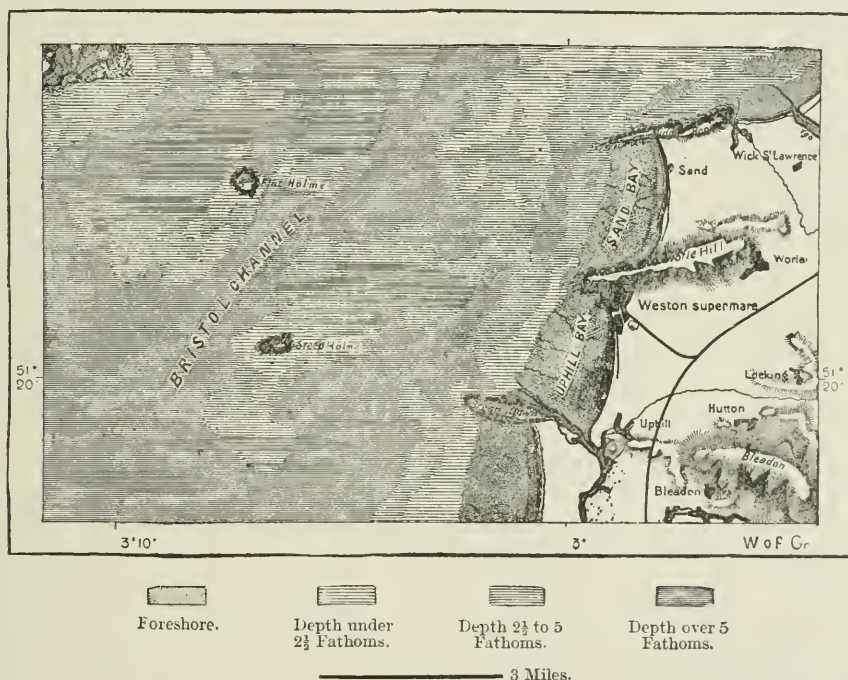
* Murchison, "Siluria: The History of the Oldest Rocks."

virtue of their medicinal springs. Whilst the Malvern Hills are covered with villas and hotels, the Forest of Dean, to the south of them, has become a great centre of industry, abounding in coal and iron. Dean Forest, notwithstanding its coal-pits and blast furnaces, is a picturesque district, comprising some 26,000 acres of wild woodland, producing some of the finest timber in the country.

Of the ranges which bound the vale of the Severn on the east, the Cotswold Hills, rising in Cleve Hill to a height of 1,134 feet, are the most important. These hills are named after their "cots," or shepherds' huts, and have in turn given their name to one of the most highly prized breeds of sheep, whose excellence is due to the short and savoury grass which grows upon the oolitic rocks. This

Fig. 53.—PROMONTORIES AND BEACH OF WESTON-SUPER-MARE.

Scale 1 : 195,000.



range terminates in the hills which form so fine an amphitheatre around Bath, on the Avon, and may be traced even beyond that river, where there are a few heights belonging to the same geological formations. The environs of Bath are well known for their fossil wealth. Here cuttle-fish of gigantic size have been found, which still retained pigment fit for use, notwithstanding the countless ages that must have elapsed from the time of its secretion by the living organism.

Towards its mouth the valley of the Severn is almost shut in by spurs thrown off from the mountains of Wales and the range of the Cotswolds. To the north of this ancient barrier the vale of Gloucester widens, its shape being that of a triangle whose apex lies in the south. The rocks spread over the valley of

the Severn and that of its affluent, the Avon, are triassic, but there was a time when ranges of carboniferous limestone extended right across the Bristol Channel, connecting the hills of Somerset with those of Wales. The Mendip Hills (1,067 feet) are a remnant of this formation, and so are the three parallel ridges near Weston-super-Mare, which jut out into the Bristol Channel. The cape facing them in Wales belongs to the same formation, as do also the fortified islands of Steepholm (240 feet) and Flatholm, which connect the fragments of the ancient limestone range, which has disappeared through long-continued erosive action. These islands, together with the sand-banks in their neighbourhood, form the natural boundary between the estuary of the Severn and the Bristol Channel.

The Severn, in comparison with the great rivers of continental Europe, is only a feeble stream. About 30 inches of rain fall within its basin, and this amount would be sufficient to sustain a river discharging 11,000 cubic feet of water per second throughout the year, if large quantities were not absorbed by the vegetation, sucked up by the soil, or evaporated into the air. It is only by the construction of locks that the Severn, up to Worcester, has been converted into a navigable river, having an average depth of nearly 8 feet. The Wye, Usk, Lower Avon, and other rivers, which discharge themselves into the estuary of the Severn, are usually looked upon as its affluents, though in reality they are independent rivers, having their proper régime, and forming minor estuaries of their own. Including these, the Severn drains an area of 8,119 square miles; it discharges on an average 5,300 cubic feet of water per second, a quantity raised to 12,000 cubic feet when it is in flood.*

In no other part of Europe does the tide rise to the same height as in the Bristol Channel and the estuary of the Severn. In reality we have to do here with three tidal waves, which enter the channel simultaneously, and increase in height and vehemence in proportion to the resistance they meet with on their progress up the funnel-shaped estuary. One of these tidal waves originates in the open Atlantic, and travels along the coast from the Land's End; the second is thrown back by the coast of Ireland, and enters through the centre of the channel; a third arrives from the northern part of the Irish Sea, coalesces with the former off St. David's Head, and thus doubles its height. This enormous mass of water, discoloured by the waste of the land resulting from its erosive action, rushes up the channel with considerable velocity, producing a rise at ordinary tides of 40 to 43 feet. At spring tides the rise at Chepstow, at the mouth of the Wye, is 60

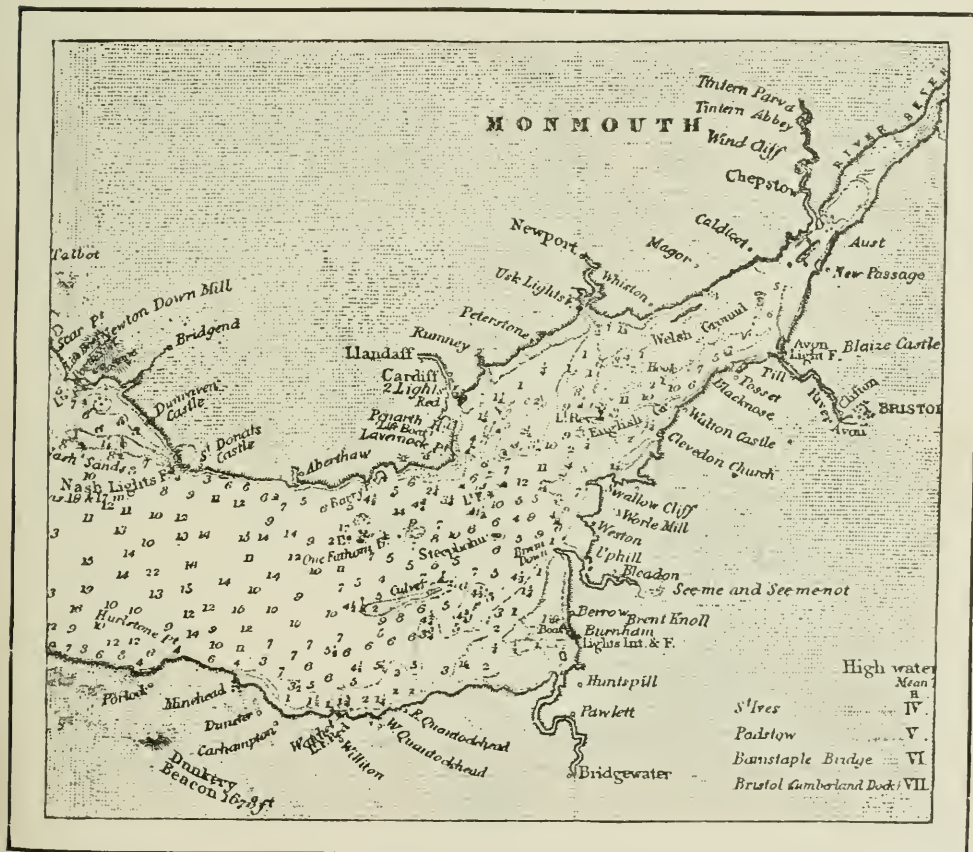
* Rivers which discharge themselves into the estuary of the Severn:—

	Drainage Basin. Sq. Miles.	Length. Miles.	Average. Cubic Feet.
Severn . . .	4,350	158	5,300 per sec.
Avon of Bristol . .	891	62	1,100 "
Wye . . .	1,609	135	2,100 "
Usk. . .	540	65	880 "
Smaller rivers . .	729	186	1,000 "
Total	<u>8,119</u>	<u>606</u>	<u>10,380</u> "

feet. The Severn estuary presents the aspect of a river only at low water, when in some places it is no more than from 700 to 900 feet wide. Sand-banks and ledges of rock then make their appearance above the water, and vessels which fail to take advantage of the rising tide to reach their port of destination are obliged to cast anchor in some favourable spot, until the next tide enables them to proceed on their voyage. At low water the Lower Severn is scarcely navigable, and even the mouths of the Wye and Avon are sometimes inaccessible. As to the fishing-smacks, they allow the retiring tide to leave them

Fig. 54.—BRISTOL CHANNEL.

From an Admiralty Chart.



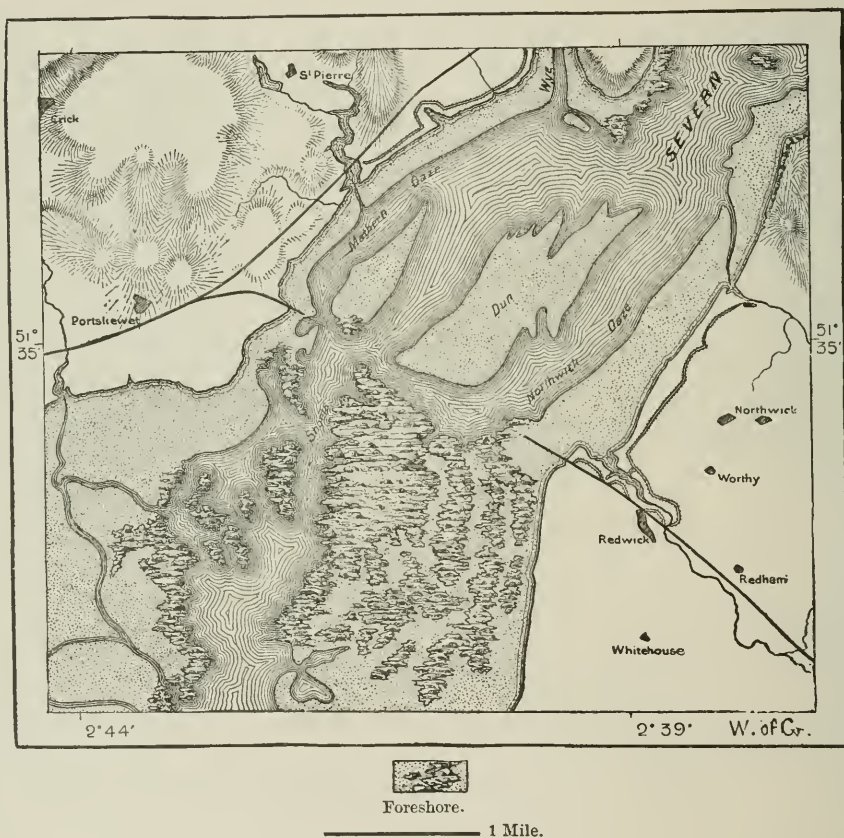
high and dry upon a sand-bank. From afar the fishermen see the shining crest of the approaching tidal wave; soon the river is arrested in its flow and turned back upon itself; the sand-bank grows less and less; the waves approach the sides of the vessel; they burrow in the sand in which its keel is embedded, and gradually uplift it. The steersman once more grasps the helm, and he finds himself afloat, where but a few minutes before there extended a mere waste of sand. In the upper and narrower part of the estuary, where the interval between low and high water is very short, the advancing tide-wave rushes suddenly up, and forms a dangerous bore. At spring tides this bore is felt as high up as Gloucester, and owing to its

suddenness is dangerous to small craft. Shouts of "Flood O! flood O!" herald its approach, and warn boatmen to prepare to meet its shock. The tide-waves, especially when a high wind blows up channel, frequently endanger the safety of the coast lands, and miles of sea-wall have been constructed for their protection.

Some of the sand-banks in the channel of the Severn are of considerable extent, that known as the Welsh Grounds, for instance, covering an area of 10 square miles. They have been utilised, in a few cases, for the construction of piers,

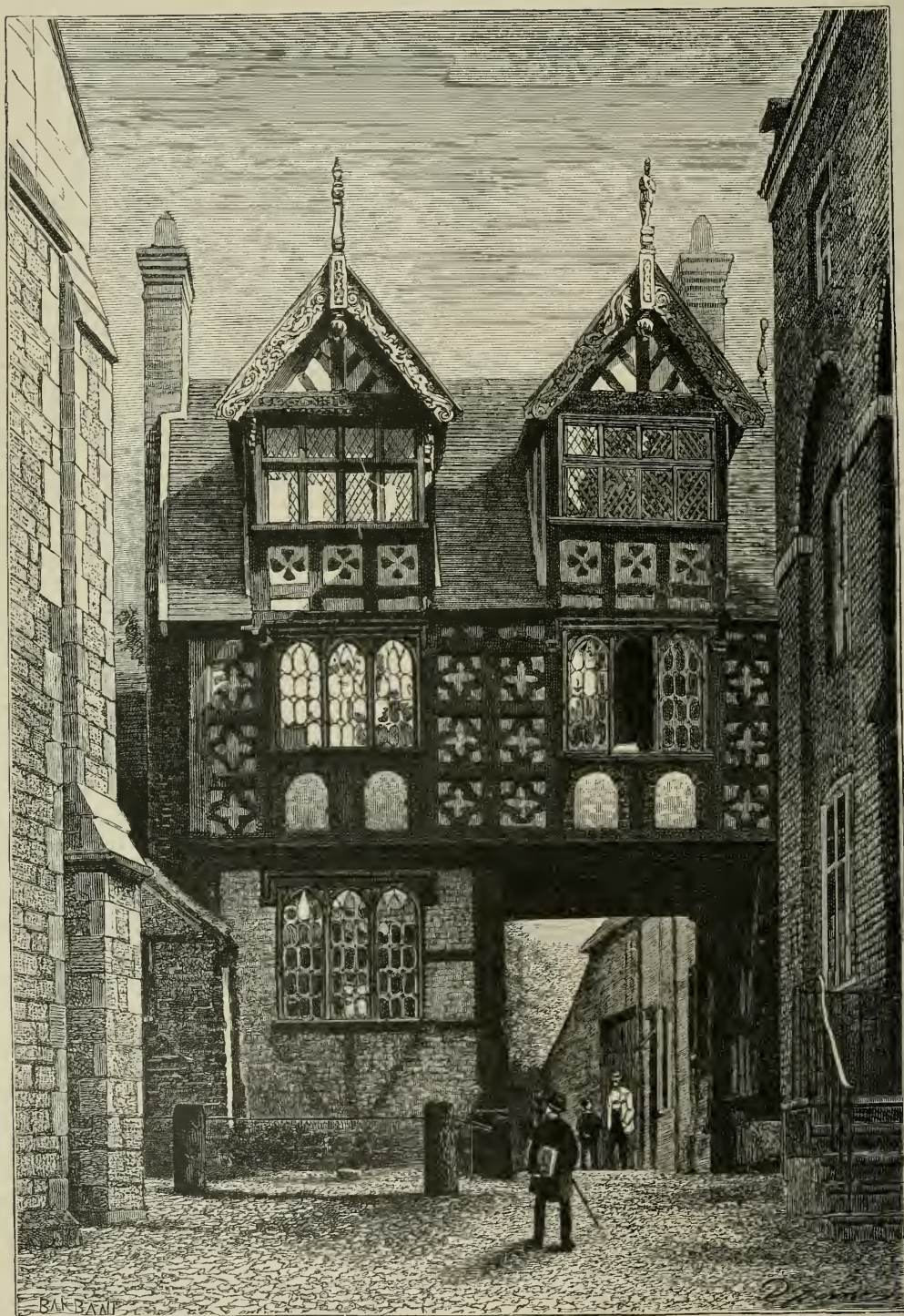
Fig. 55.—RAILWAY FERRY AT PORTSKEWET.

Scale 1 : 75,000.



as at Portskewet, where a railway ferry-boat crosses the river at regular intervals. Until quite recently the first bridge met with on ascending the Severn was that of Gloucester, but since 1879 a railway bridge has spanned the river at the Sharpness Docks, above the entrance to the Gloucester and Berkeley Ship Canal. Including a masonry approach, this bridge has a total length of 4,162 feet. It is composed of bowstring girders, carried on cast-iron cylinders filled with concrete. Two of its spans have a width of 327 feet each, with a headway of 70 feet above the high-water level of ordinary spring tides.

The basin of the Severn is designed by nature as a region of great commercial



SHREWSBURY—HOUSE OF THE SIXTEENTH CENTURY.

activity, for whilst, on the one hand, it impinges upon the coal-fields of Wales, it approaches on the other the metalliferous formations of Cornwall, and its eastern affluents mingle their waters, in the very centre of England, with those of the Trent and Thames, which flow to the German Ocean. But this region is peculiarly favoured by the vast estuary of the Severn in its commercial intercourse with trans-Atlantic countries. This estuary is a counterpart of that of the Thames, and lies under the same latitude. Jointly they almost sever Southern England from the northern part of the island, and merely looking to geographical features, we might conclude that the two leading commercial towns of the country would have sprung up on these great natural outlets. But whilst London actually holds that position with reference to the neighbouring countries of continental Europe, Bristol has not been able to maintain its superiority in the face of the competition of Liverpool. Its geographical position is no doubt more favourable than that of the great seaport of Lancashire, and during a considerable period it maintained its rank as the foremost commercial town of Western England. Geographical disadvantages, however, are more than counterbalanced, in the case of Liverpool, by its vicinity to productive coal, iron, and salt mines, and populous manufacturing towns.

TOPOGRAPHY.

SHROPSHIRE, or SALOP, is divided by the Severn into two almost equal portions, that to the north and east of the river being for the most part flat or undulating, whilst hills of moderate elevation occupy the tract beyond the Severn. The so-called plain of Shrewsbury, which extends into the county from the borders of Cheshire and stretches beyond the Severn as far as Church Stretton, forms a characteristic feature, and is known for its fertility. On the east it is overlooked by the isolated summit of the Wrekin, the famous landmark of the entire county. From Clun Forest, in the west, several ranges of hills radiate like the spokes of a wheel, extending as far as the Severn, and in some instances even beyond it. The principal of these ranges are the Stiper Stones, Long Mynd, Caradoc Hills, and Wenlock Edge. Farther east, and nearer to the Severn, rise the Clee Hills, and before leaving the county that river washes the foot of the heights of the Forest of Wyre. Tillage and husbandry prevail in the north, cattle and sheep breeding in the hilly parts of the county. Much cheese is made, and a breed of horned sheep is peculiar to the county. Shropshire, however, is not wholly dependent upon agriculture, for it possesses productive coal and iron mines. Lead is also raised, but the copper mines appear to have become exhausted. The manufactures are comparatively unimportant.

Shrewsbury, the capital of the county, is the first town washed by the Severn after that river has left Wales. In former times it was a place of great military importance, and the lofty peninsula, almost encircled by the Severn, upon which it is seated, was strongly fortified by walls and a Norman castle, of which there still exist considerable remains. Perhaps no other town in England is equally rich in fine mediæval buildings. The market-house dates from the sixteenth

century; the Council House is an old mansion, where the court of the Welsh Marches was held. St. Mary's Church has an octagonal spire and a profusion of stained glass. "Butchers' Row" is interesting on account of its quaint shops. Monuments have been raised in honour of Lord Hill and Lord Clive. Shrewsbury

Fig. 56.—SHREWSBURY.

From the Ordnance Survey Map. Scale 1 : 63,366.



carries on the manufacture of flannel, agricultural machinery, and linen-weaving, but is essentially an agricultural town. It is famous for its brawn and cakes.

Descending the Sever, we soon reach *Wroxeter*, a village with a Norman church, and the ruins of the Roman city of *Uriconium*, at the foot of the Wrekin.

Most of the antiquities discovered on this spot have been deposited in the museum of Shrewsbury, but the visitor may still trace part of the old wall, the foundations of a basilica, and the remains of baths. The Roman city was probably destroyed by the Saxons, in the sixth century, when its defenders were Romanised Britons.

Below Wroxeter the Severn enters a narrow gorge, and passes through the coal and iron district of the county. Leaving the ruins of *Buildwas Abbey* on our left, we soon reach the iron bridge which joins the town of *Ironbridge* to that of *Broseley*, and is the oldest bridge of the kind in the world, having been erected in 1779 by Abraham Darby, of Coalbrookdale. Broseley is noted for its tiles and tobacco-pipes, whilst the cluster of towns on the opposite bank of the river, including *Ironbridge*, *Coalbrookdale*, *Dawley Magna*, and *Madeley*, is the seat of a flourishing iron industry, which spreads northward through the beautiful dale of Coalbrook as far as *Wellington*, and in the north-east to *Shifnal*. *Coalport*, a few miles below the bridge, has potteries and china works. The iron industry of this district was established in 1709, and the works have retained their reputation for fine castings. It is probable, however, that these populous towns will at no very remote time sink as rapidly into insignificance as they have risen into importance. The whole of the western portion of this Shropshire coal basin has become exhausted, and large tracts exhibit only abandoned works and heaps of rubbish, which are gradually becoming clothed with soil. Sooner or later grass and herbage will spring up upon them, and it will then be impossible to distinguish them from natural hillocks. Two-thirds of the coal originally stored in this basin have already been raised to the surface, and before many years the iron-masters and coal miners will migrate to the east, in order to tap the coal beds which there underlie the Permian and new red sandstone formations.*

To the south of this industrial district the Severn passes between "low" and "high" *Bridgenorth*, the latter perched on a picturesque cliff of sandstone, 150 feet high. Besides the remains of its Norman castle, Bridgenorth may boast of several half-timbered houses, including that in which Bishop Percy, the collector of the "Reliques," was born.

The few towns in the northern portion of the county are quiet centres of agricultural districts. They include *Oswestry*, in the north-west, amidst prettily wooded hills, between Offa's and Watt's Dykes, the ancient frontier of Wales; *Ellesmere* and *Whitchurch* in the north; *Market Drayton*, on the Upper Tern and the Birmingham and Liverpool Canal; and *Newport*.

In the hilly region, bounded on the north and east by the valley of the Severn, and in the south by that of its tributary the Teme, there are only small market towns and villages. The principal of these are *Much Wenlock*, the centre of an extensive borough, including a considerable portion of the county; *Cleobury-Mortimer*, in the Clee Hills; *Church Stretton*, in a fertile pastoral district, between the Caradoc Hills and Long Mynd; and *Bishop's Castle*, on the Welsh border. The river Teme runs along the southern border of the county. On it stands *Ludlow*, a famous old border-town, with curious timber houses and an extensive Norman

* Edward Hull, "The Coal-fields of Great Britain."

castle, where Milton wrote the masque of *Comus*, and Samuel Butler his "Hudibras." The town boasts a museum, rich in Silurian fossils found in the castle rock, and whilst these attract geologists, the picturesque environs are the delight of all lovers of nature. Higher up on the Teme is *Clun*, a quiet place with a ruined castle. In its neighbourhood small freehold properties, tilled by the proprietors and their families, are numerous.

WORCESTERSHIRE occupies the central portion of the fertile valley of the Severn, here about 15 miles in width, and shut in on the west by the Abberley and Malvern Hills (1,396 feet), and on the east by the Clent and Lickey (Hagley) Hills. The Teme, which comes down from the Welsh hills, flows through a narrow valley, whilst the Avon irrigates the fertile vale of Evesham. The north-eastern portion of the county, beyond the Lickey Hills, is only in part drained by the Severn. Its soil, in many places, is poor and arid, but this is compensated for by the existence of rich beds of coal and ironstone. Worcestershire, besides cattle and dairy produce, yields fine wool, hops, apples, and excellent cider. There are coal, iron, and salt mines, and the manufactures are of considerable importance.

If we follow the Severnas it crosses from Shropshire into Worcestershire, the first town we meet with is *Bewdley*, a quaint old place with many timbered houses, close to the fine scenery of the Forest of Wyre. Lower down is *Stourport*, at the mouth of the Stour, which exports the produce of *Kidderminster* and *Stourbridge*, higher up on that tributary of the Severn. Kidderminster, a dingy town, is famous for its carpet-weaving, whilst Stourbridge has glass manufactories, brick works, collieries, and tin-plate works. The making of glass was here first introduced in 1555. Resuming our journey down the Severn, we reach the mouth of the Salwarpe, in the narrow valley of which is situate the old town of *Droitwich*, known for its brine spring. Still lower on the same river, at *Stoke Prior*, there are mines of rock-salt, and a couple of miles beyond we reach *Bromsgrove*, a more important town than either of those named, and remarkable for its curious houses with ornamental gables. Nail-making and the manufacture of needles, fish-hooks, buttons, and coarse linens are here carried on.

Worcester, although the capital of the county, yields to Dudley in population, but is infinitely superior to it in other respects. It is a place of the highest antiquity, and when the Romans established one of their stations there it had already attained some importance. Earthenware and other relics of the Roman dominion have been placed in a museum built within the walls of the ancient castle. In the Middle Ages Worcester played a leading part; and during the Revolution, Cromwell, in 1651, inflicted a decisive defeat upon the Royalists in its neighbourhood. The cathedral, standing on rising ground, is the most conspicuous building in the city. It presents specimens of all styles of architecture, from the earliest Norman to the latest perpendicular. Its central tower, completed in 1374, rises to a height of 192 feet. The town has lost its manufacture of carpets and woollen stuffs, now carried on at Kidderminster, but is famous for its leather gloves, its china, and potted lampreys. The Royal China Manufactory was opened in 1755. Recently erected engine works add to the prosperity of the

town, which also carries on a considerable commerce in agricultural produce. But in addition to being a town of business, Worcester enjoys a high reputation for its social amenities, and families in search of a pleasant retreat are attracted to it from all parts of England.

Upton-on-Severn, below Worcester, owes its importance to its shipping, for the river is navigable to this place for vessels of 110 tons burden.

To the west of it rise the Malvern Hills, famous for their scenery, no less than for the salubrious spas known as Great Malvern, West Malvern, and Malvern Link, which have been established on their slopes. The springs to which Malvern owes its reputation are slightly sulphureous, and in no other part of England is hydrotherapeutic treatment carried on with the same success. *Tenbury*, a more retiring spa, lies in the valley of the Teme. Its water is supposed to be most effective in the cure of cutaneous diseases.

Evesham is the principal town of Worcestershire within the fertile valley of the Avon. It boasts a famous old abbey with a fine bell tower, and, though now a quiet country place, has been the scene of some stirring events. On Greenhill, to the north of the town, was fought the battle (1265) in which Simon de Montfort, the champion of the barons and of constitutional government, "fought stoutly for the liberties of England," but fell, overwhelmed by numbers. A miraculous well, still known as "Battle Well," burst forth from the ground on the spot where Simon de Montfort expired, and for ages attracted pilgrims in search of relief from their ailments. On Vineyard Hill, on the other side of the Avon, the vine was cultivated from the time of the Conquest to the dissolution of the neighbouring abbey. *Pershore*, lower down on the Avon, has a famous old church with a handsome lantern tower of the fourteenth century, held to be not inferior to that of Lincoln Cathedral.

In the north the "Black Country" of Staffordshire overlaps the borders of the county, and has given birth to several populous towns, the seats of coal mining and iron works. Foremost amongst these is *Dudley*, within a detached portion of the county. The castle, now in ruins, dates back to a time when Dudley was yet a quiet country town. The hill which it crowns has yielded large quantities of fossils, which have been deposited in the local museum. The Wenlock Canal is carried through it by means of a tunnel. *Oldbury* and *Hales Owen*, one to the east and the other to the south of Dudley, are engaged in the same industries, nail-making playing a leading part. Hugh Miller is our authority for stating that the severe work in the iron-mines has in no respect been detrimental to the physical beauty of the inhabitants, which is most striking amongst the women, whilst the natives of the Malvern Hills, notwithstanding the salubrious air they breathe, are homely in appearance, not to say ugly.* As to *Balsall*, it is in reality a part of Birmingham. The only other town to be noticed is *Redditch*, close to the eastern borders, where the manufacture of needles and fish-hooks is carried on.

WARWICKSHIRE, one of the midland counties, lies almost wholly within the

* Hugh Miller, "First Impressions of England and its People."

basin of the Avon, only a small section of its extreme northern part being drained by the Tame and other small rivers flowing northward to the Trent. The surface is varied only by gentle undulations. Formerly nearly the whole of the county was an extensive forest, and it still retains somewhat of this ancient character, small patches of woodland and heath being by no means infrequent. The Avon is the only navigable river, but canals and railways afford ready means of intercommunication. Coal is found in the north, and as a manufacturing county Warwickshire takes a high rank, for within its borders lies Birmingham, the centre of a huge industrial district.

The Avon, the principal eastern affluent of the Severn, rises nearer to the German Ocean than to the Bristol Channel. Its springs lie in Northamptonshire, near Naseby Hill, rendered famous by the defeat of the Royalists in 1645. The first town in Warwickshire which is reflected in its waters is *Rugby*, celebrated for its grammar school, founded in 1567. The original endowment of this public school consisted of 8 acres of land, near the city of London, yielding an annual income of £8. In course of time these have become covered with houses, and produce now an annual revenue exceeding £6,000. The school occupies a fine Gothic building, and is attended by five hundred pupils.

Warwick, the capital of the county, occupies a central position. It has played a great part in the history of the English people. Its castle, on a hill washed by the waters of the Avon, and seated in the midst of a fine park, was one of the most magnificent and extensive castles of the Middle Ages, and much of its pristine beauty still survives. In 1871 a fire threatened destruction to this seat of Warwick the King-maker, but the damage sustained has been repaired, and the costly paintings and other treasures of art were fortunately saved. Foremost amongst these is the celebrated Warwick Vase, recovered from the ruins of the Emperor Adrian's villa at Tivoli. "Cæsar's Tower" is probably as old as the Conquest, but from Guy's Tower may be obtained a more magnificent view. Looking northward, we catch a glimpse of another castle, almost equally famous, namely, *Kenilworth*, where Dudley, Earl of Leicester, entertained Queen Elizabeth for seventeen days (1575). Cromwell caused this stronghold to be dismantled, and its extensive and picturesque ruins now form one of the great attractions of the visitors to the neighbouring spa of *Leamington*. In 1811 this favourite resort of invalids and pleasure-seekers was a humble and obscure village of five hundred inhabitants. Since then the fame of its sulphureous, saline, and chalybeate springs has gone on increasing, and with it the number of residents and visitors, and now this new town far exceeds in population its venerable neighbour Warwick, from which it is still separated by the Avon, here joined by the Leam, but which its new streets are rapidly approaching.

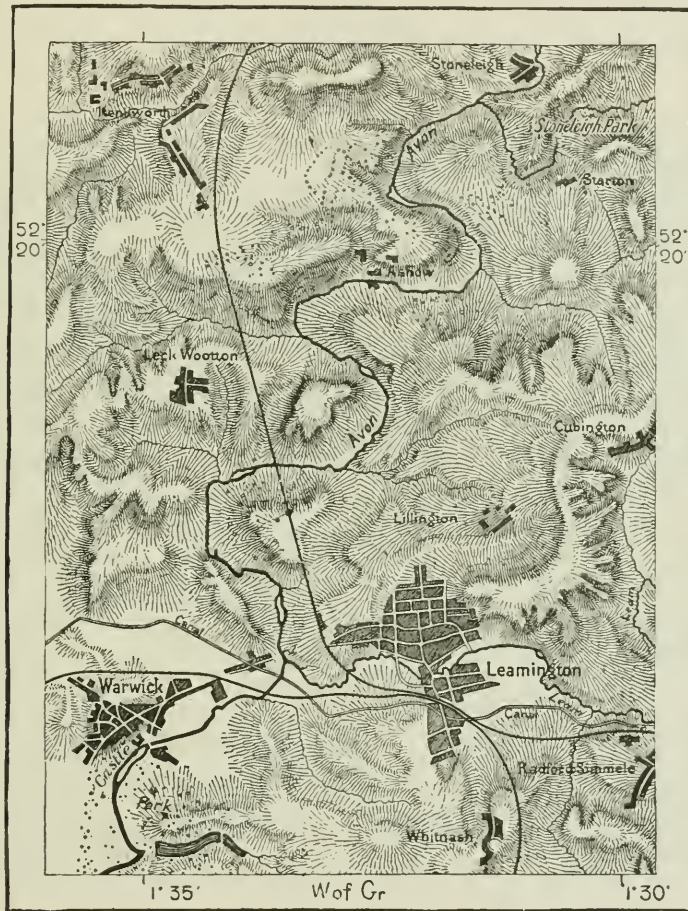
Only a few miles below Warwick we reach another town rich in historical associations. This is *Stratford-on-Avon*, the birthplace of Shakspeare. The house in which the poet lived, and was probably born, still exists, and there are few monuments held in higher veneration than this humble dwelling, now converted into a museum. The last descendant of the family, having become



WARWICK CASTLE.

impoverished, was compelled to leave it about the commencement of this century. The great dramatist lies buried in the parish church, and a monument was raised in his honour by Garrick, the actor. A small theatre has been recently erected in celebration of the third centenary of his birth, and contains a Shakspeare library, together with works of art relating to the poet. The environs of the town abound in sites and villages referred to in Shakspeare's plays and ballads, and there even

Fig. 57.—WARWICK AND LEAMINGTON.



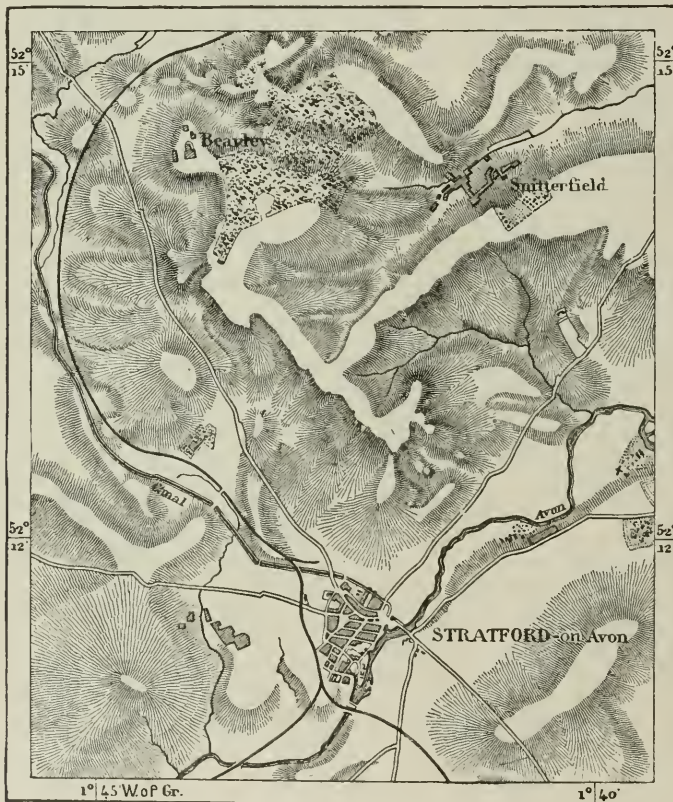
survive a few patches of the extensive forests in which he used to poach when a youth.

The Arrow joins the Avon shortly before the river crosses the border of Worcestershire. In its valley lie *Alcester*, the Roman *Alauna*, with many quaint old houses, and *Studley*, with the ruins of an abbey. Needles and fish-hooks are manufactured in both these towns. *Henley-in-Arden*, a small market town, occupies almost the centre of the ancient Forest of Arden, between Studley and Warwick.

Coventry, on the *Sherbourne*, a small tributary of the *Avon*, is far more populous than either of the towns mentioned. Its name recalls the ancient convent around which the first houses were built. Originally *Coventry* was a place of processions and pilgrimages, and legends and popular sayings testify to the reputation which it enjoyed during the Middle Ages. Best known amongst these legends is that of *Lady Godiva*, the wife of *Leofric*, and "*Peeping Tom*." *St. Michael's Church*, with a steeple 303 feet in height, is one of the finest Gothic edifices in the country. Formerly *Coventry* was noted for its cloth, but for its

Fig. 58.—STRATFORD-ON-AVON.

Scale 1 : 88,400.

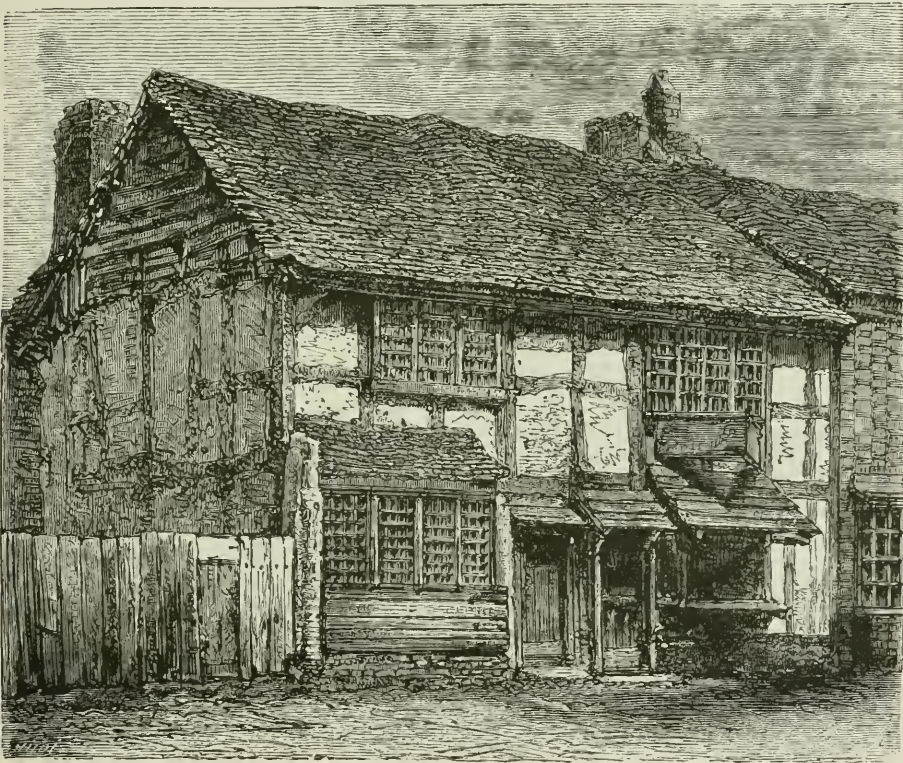


2 Miles.

present prosperity it is mainly dependent upon the manufacture of ribbons, which was introduced by French refugees who settled there after the revocation of the Edict of Nantes. *Foleshill* and *Bedworth*, higher up on the *Sherbourne*, carry on the same branches of industry, besides which the latter has some collieries. *Nuneaton*, in the valley of the *Anker*, on the northern slope of the county, engages largely in cotton-spinning, whilst its neighbour *Atherstone*, in the same valley, in addition to collieries, carries on the manufacture of hats and caps.

Birmingham, the largest town of Warwickshire, does not lie within the basin of the Severn, for it is built upon the undulating ground extending on both sides of the river Rea, a tributary of the Tame, which discharges its waters through the Humber into the German Ocean. In Domesday Book the city is called Bermingeham. This afterwards became corrupted into Bromwycham, or Brummagem, meaning the "town of brooms," but popularly associated with pinchbeck and base metals fraudulently used to make articles glitter like gold. Birmingham is an ancient seat of the iron industry, and in 1643, having taken the side of the Parliament, it supplied swords and other weapons which did good service against the lancers of Prince Rupert. The commercial importance

Fig. 59.—SHAKSPERE'S HOUSE.



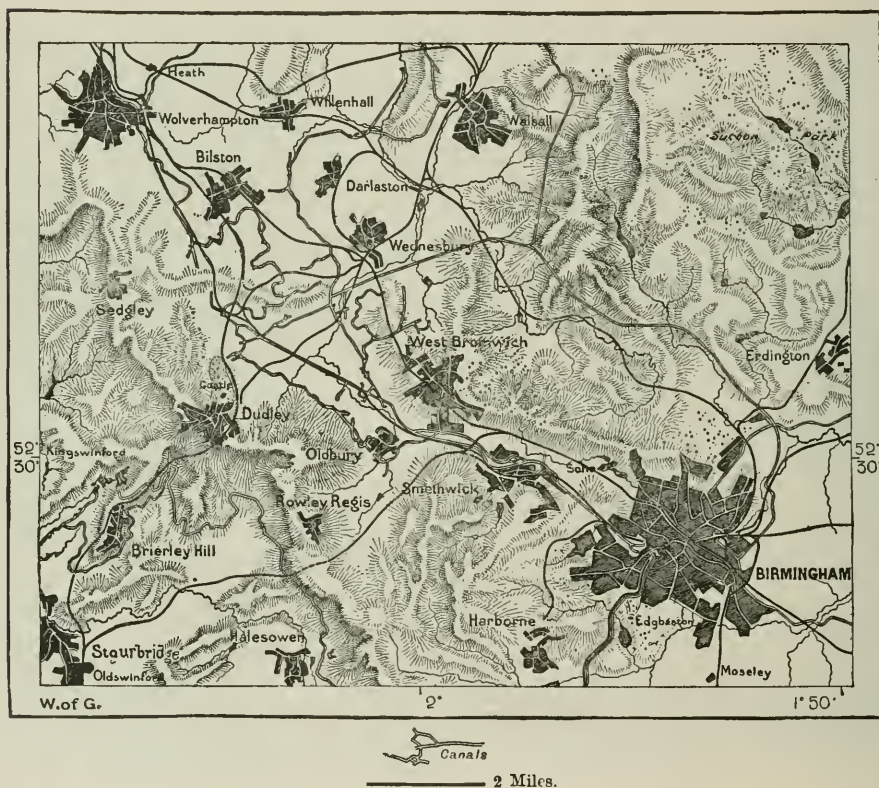
of the town dates, however, only from the restoration of Charles II., who brought metal ornaments into fashion, and these Birmingham supplied with unexampled vigour. From being the "toy-shop of Europe" of Burke's time, it has grown into a town pre-eminent for every description of metal-ware, from steam-engines to steel pens and jewellery. Its industry is not exclusively carried on in huge factories, but employs a multitude of artisans working at home, or in small shops, and they have thus retained a spirit of initiation and independence not usually found to exist in manufacturing towns. The leading articles made at Birmingham are hardware, unequalled for variety and value; tools, small arms, nails, pins, steel pens, buttons, jewellery, electro-plated ware, glass, bronzes,

papier-mâché goods, and carriages. Near *Handsworth*, a little to the west of Birmingham, within the Staffordshire border, are the famous Soho and Smethwick works, founded by Watt and Boulton, where steam-engines were first made. The manufacture of "toys" is still vigorously carried on, the most curious of this class of goods being Chinese idols and African fetishes.

The lower part of Birmingham is crowded with workshops, and grimy, but the upper has regular streets, and the suburbs, including Edgbaston and Aston Manor, abound in elegant villas and stately residences. Birmingham boasts now

Fig. 60.—BIRMINGHAM.

Scale 1 : 200,000.



of being the most "radical" town of the kingdom, and of having the largest number of public institutions supported by voluntary contributions; yet it was here that the mob denounced the distinguished Dr. Priestley as an atheist and Jacobin (1791), and destroyed his house, library, and apparatus. Amends for this outrage have been made by the erection of a statue of the great chemist and discoverer of oxygen, which occupies a site in front of the municipal buildings. Most prominent amongst the public edifices of the town is its Town-hall, in which the celebrated triennial musical festivals are held, and which contains a fine marble bust of Mendelssohn, who produced here, in 1847, his oratorio *Elijah*.

Its shape is that of a Grecian temple, and it was built 1832—35. The Birmingham and Midland Institute adjoins it, and accommodates a school of science and art, a museum, and a free library. King Edward's Grammar School, founded in 1533, occupies a Gothic building of modern date. Other educational institutions are Queen's College, founded in 1843, in connection with London University, and the Science College, endowed by Joshua Mason in 1872. St. Martin's Church, in the Bull Ring, contains a few ancient monuments, and portions of it date back to the thirteenth century. All other churches are modern. Bingley Hall, a

Fig. 61.—THE SEVERN BELOW GLOUCESTER, AND THE BERKELEY SHIP CANAL.

Scale 1 : 200,000.



vast structure with no claims to architectural beauty, is used for cattle and poultry shows, and as a drill-place for the volunteers. Aston Hall, an edifice in the Elizabethan style, where Charles I. was entertained before the battle of Edge Hill, is now a museum, and the surrounding park has been thrown open to the public. Still farther north, about 4 miles from the town, is the fine park of *Sutton Coldfield*.

GLOUCESTERSHIRE lies for the greater part within the basin of the Severn, and extends on both sides of the estuary of that river, in the west as far as the Wye,

in the east to the mouth of the Bristol Avon. Physically the county includes three well-marked regions, the principal being the fertile lowland intersected by the Severn, and known as the Vale of Gloucester and Berkeley. In it is gathered the bulk of the population of the county, and tillage and dairy-farming are practised with great success. The most valuable meadow lands extend along the banks of the Severn below Gloucester, and are defended from inundation by sea-walls. The environs of Berkeley are more especially famous for their cheese. The vale is remarkable for the mildness of its climate, and William of Malmesbury tells us that in the twelfth century it produced wine but little inferior to that of France. The forest district lies to the west of the Severn, its great feature being the Royal Forest of Dean, now much reduced by the progress of cultivation, but still of great extent. It is rich in coal and iron, and famous for its cider, or "styre."

Fig. 62.—GLOUCESTER CATHEDRAL.



The third region is that of the Cotswolds, to the east of the Severn, where the air is keen and sharp, the soil thin, and the population sparse, but which nevertheless abounds in good pasturage for sheep.

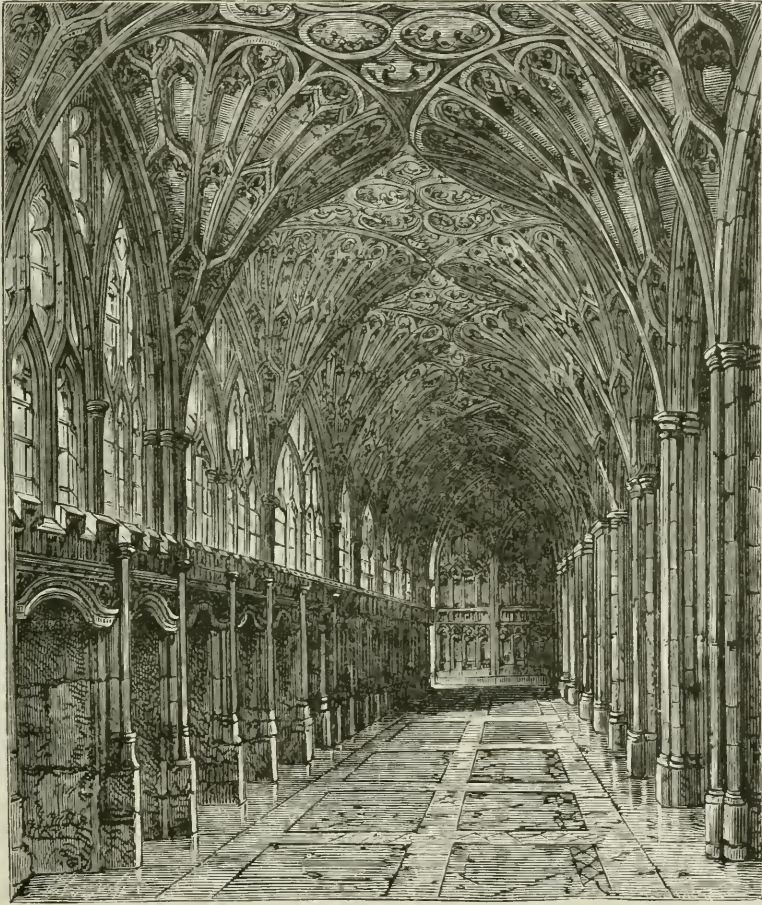
Gloucestershire carries on numerous industries, the manufacture of superior cloth being the chief amongst them.

Immediately after we cross the borders of Shropshire we find ourselves within sight of the old town of *Teukesbury*, with its quaint houses and extensive abbey church, recently renovated. About half a mile to the south of the town lies the "Bloody Meadow," upon which was fought, in 1471, the last battle in the War of the Roses.

Gloucester, the capital of the county, the *Glerum* of the Romans, is an ancient city. The tower of its superb cathedral rises to a height of 223 feet, and there are other buildings interesting to the antiquary, the most remarkable being the

New Inn, an old house for poor pilgrims, built of chestnut-wood. The town carries on a considerable trade in agricultural produce, for it lies in the centre of one of the most productive districts of England. By means of the Berkeley Ship Canal, which enters the estuary of the Severn 16 miles below it at Sharpness, vessels of 400 tons burden can reach its docks. The manufacture of agricultural machinery is extensively carried on. Gloucester has a mineral spring in its spa grounds, now converted into a public park, but is completely

Fig. 63.—THE CLOISTERS, GLOUCESTER CATHEDRAL.



overshadowed as a watering-place by its more attractive neighbour *Cheltenham*. This favourite place of retreat of Anglo-Indians lies at the foot of the Cotswold Hills, and on the margin of the vale of Gloucester. It is renowned for its mild and salubrious air, its delightful environs, and its chalybeate springs, reputed as an effective remedy in a variety of diseases. Fine promenades, assembly-rooms, and a pump-room add to the amenities of a place which boasts of having a lower death rate than any other town in England. But, besides being a fashionable watering-place, Cheltenham has become an educational centre, whose

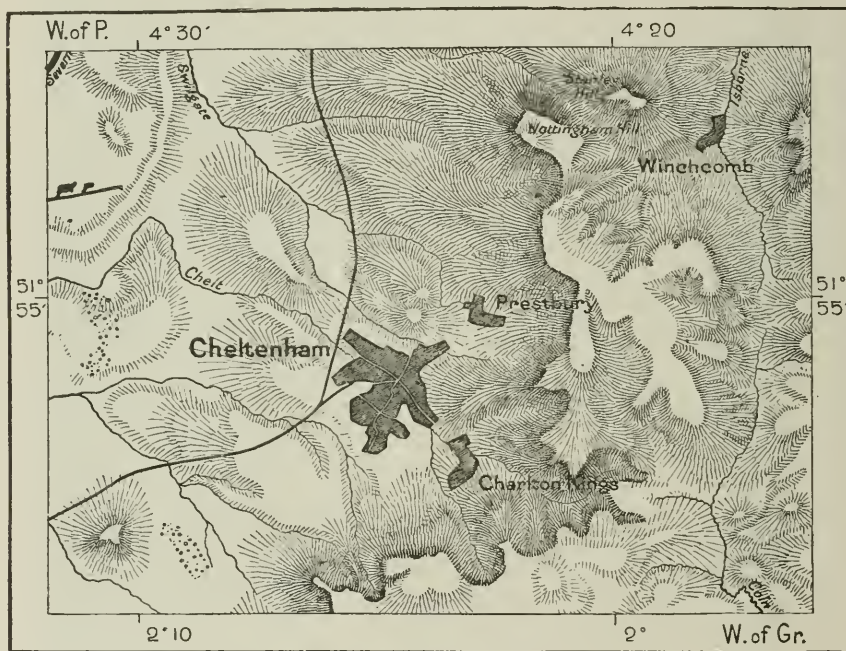
proprietary colleges, both for boys and girls, take a high rank, and are supplemented by numerous private schools.

Stroud, to the south of Gloucester, in a valley of the Cotswolds, is one of the principal seats of the clothing trade of the county, an industry which employs likewise many of the inhabitants of the small towns of *Bisley* and *Minchinhampton*, the one to the east, the other to the south-east of it. At *Lypiatt Park*, an old monastic establishment, half-way on the road to Bisley, the Gunpowder Plot is said to have been concocted.

Berkeley, in the centre of a fertile grazing country, exports real Gloucester cheese. Its castle, with a keep erected in 1093, is still inhabited, and the dungeon

Fig. 64.—CHELTENHAM.

Scale 1 : 175,000.



over the gatehouse, in which King Edward II. was murdered in 1327, is pointed out to curious visitors. *Dursley* and *Wotton-under-Edge*, both prettily situated towns on the slope of the Cotswolds, to the south-east of Berkeley, are engaged in the clothing trade. Near Dursley there are valuable quarries of Bath stone, which hardens on exposure to the air, but is not very durable. *Tetbury*, still farther to the east, on an eminence overlooking the source of the Avon, is famous for its corn market. Of the many towns in the valley of the Avon, Malmesbury, Chippenham, Melksham, and Bradford belong to the county of Wiltshire, and Bath lies within Somersetshire; but Bristol, the most important of all, only 7 miles above the mouth of the river, is situated almost wholly within the borders of Gloucestershire.

Bristol is one of the busiest cities of the United Kingdom. In the fourteenth century it hardly yielded in importance to the capital, for when Edward III. appealed to the maritime towns of his kingdom to furnish vessels for the investment of Calais, Bristol was called upon to fit out twenty-four, or only one less than London. In the age of great discoveries it was from the Avon that most vessels sailed in search of new countries and a north-west passage. It was Bristol which sent forth the *Mathias* in 1497, under the command of John Cabot, a citizen of Venice, but a Genoese by birth;* and Bristol may thus claim the honour of having sent out an explorer of a portion of North America, probably Labrador, fourteen months before Columbus himself had touched the New World.† In our own century it was again Bristol which was first amongst the maritime towns of Europe to send a steamer across the Atlantic to America, for in 1838 the *Great Western*, commanded by Captain Hosken, started from the Avon, and reached New York without an accident. Yet it is not Bristol which has reaped the advantages which accrued from the spirit of enterprise animating its shipowners, for Liverpool has become the great port of departure for trans-Atlantic steamers. The relative decay of Bristol, however, had commenced more than a century before that time, and if Liverpool rapidly overtook her rival, this was not done without the citizens themselves being largely to blame. In the enjoyment of almost unlimited privileges, they prevented strangers from settling in the town unless they submitted to numerous disabilities which deprived them of every initiative. It was thus that the advantages which Bristol enjoyed in consequence of its geographical position and the relations established with foreign countries were gradually lost to it.‡

Bristol nevertheless continues to this day one of the busiest seaports of England. The Avon, a narrow tidal river bounded by steep cliffs, enables the largest vessels to reach the docks of the town, whose locks are closed as soon as the tide begins to retire. These docks were excavated in the beginning of the present century, and occupy the ancient bed of the Avon, as well as the lower part of the Frome, which joins that river close by the cathedral. Although some 3 miles in length, this "harbour" hardly suffices for the accommodation of the vessels which crowd it, and sea-docks have consequently been constructed at the mouth of the river, at *Avonmouth*, and opened in 1876. The trade of the place has always been connected with the West Indies and the North American colonies. Whilst the West Indies were cultivated by slaves, and Virginia partly by transported criminals, the wealth generated in Bristol by intercourse between them produced, on the one hand, an upper class peculiarly haughty and unsympathetic, and on the other a mob exceptionally rough and violent. In the seventeenth century, Mr. Bancroft tells us, the Bristol authorities used to make large profits by selling criminals as slaves to Virginia, inducing them to consent by threatening them with death. In our own days, the "Reform riots" of 1831, which laid much of the

* D'Avezac, *Bulletin de la Société de Géographie*.

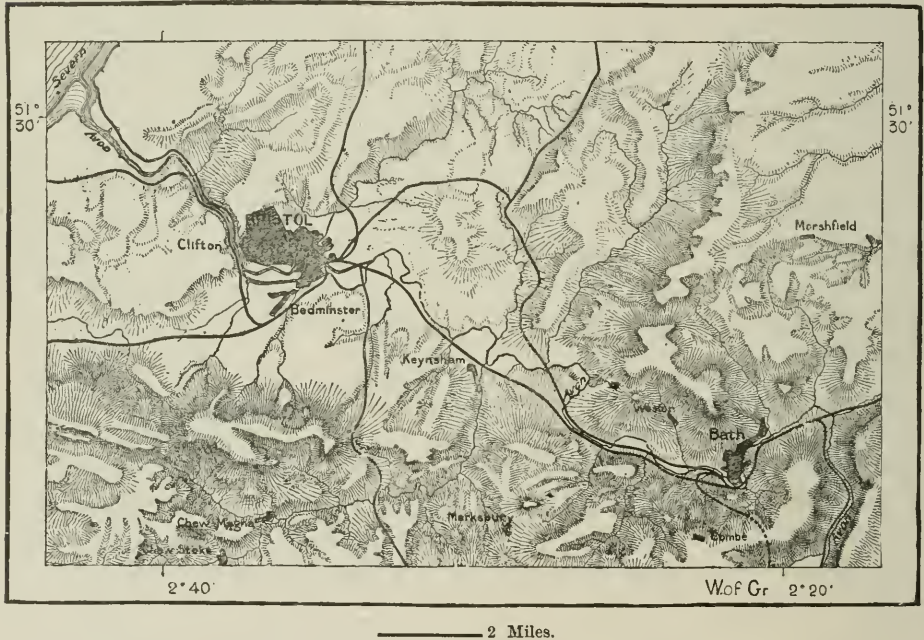
† Peschel, "Zeitalter der Entdeckungen."

‡ Halley, "Atlas Maritimus et Commercialis."

city in ashes, bear witness to the roughness of the Bristol mob.* The imports include tobacco and raw sugar from the West and East Indies and America, timber from Norway and Canada, corn from Russia, spirits, and wine. The exports consist principally of the manufactures of the town, such as refined sugar, tobacco and cigars, metal-ware, soap, oil-cloth, machinery, and glass; for though Bristol does not hold the first place in any single branch of manufacturing industry, it is at all events distinguished for the variety of its productions. The coal seams which underlie the basin of the Avon are not very thick, but they supply the manufactories of the town with excellent fuel. The manufacture of cloth, introduced by Flemish weavers in the reign of Edward III., is no longer carried on by Bristol, but has been transferred to the Gloucestershire towns to the north-east of it.

Fig. 65.—BRISTOL AND BATH.

Scale 1 : 230,000.



Bristol proper rises on hilly ground to the north of the Avon, and, like Rome, is supposed to have been built upon seven hills. The suburbs, however, spread far beyond the ancient limits of the city. Bedminster, to the south, in the county of Somerset, now forms part of it; villas are scattered over the heights which separate it from *Horbury* and *Westbury-on-Trym*, in the north; whilst in the west it has coalesced with *Clifton*, which in the last century was a pretty village where the merchants of Bristol sought repose from their labours. The airy heights which were at that time dotted over with a few detached villas are now covered with ornamental buildings and rows of terraces, stretching round Durdham Downs, and crowning the bold cliffs which here bound the narrow gorge of the Avon. Since 1864 this gorge has been spanned by a suspension bridge, at a height of 287 feet

* Moberley, "Geography of Northern Europe."

from low water. This bridge, the numerous villas of Clifton, and their shrubberies, together with the venerable cathedral, the chaste Gothic church of St. Mary Redcliffe, and the lofty square tower of St. Stephen's, built in 1472, constitute the principal attractions of the town. The Bristol Museum and several country seats in the vicinity, including Leigh Court and Blaise Castle, are rich in works of art. Amongst the famous men born in Bristol are William Penn, Southey the poet, Thomas Lawrence the painter, and Chatterton. Bristol also disputes with Venice the honour of being the birthplace of Sebastian Cabot.

There are no towns of importance in the hill district of Gloucestershire, to the west of the Severn. *Newent*, a market town 9 miles north-west of Gloucester, has collieries, and a church with a lofty spire. *Westbury-on-Severn* is interesting to geologists on account of the fish and bone beds of its garden cliff. *Newnham*, on a hill below Westbury, exports the coal raised in its vicinity and at *Mitcheldean*, in the interior. Half-way between these two places we pass the ruins of the ancient abbey of *Flaxley*, whose foundation dates back to the twelfth century. *Lydney*, lower down on the Severn, has iron and tin-plate works, and is a coal shipping port. We are now within the manufacturing and mining districts of the ancient Forest of Dean, nearly all the towns and villages of which lie nearer to the bank of the picturesque Wye, which bounds the county on the west, than to that of the Severn. *St. Briavels*, the ancient capital of the forest, has a castle of the thirteenth century, in which the Lord Warden of the forest used to reside. *Newland* and *Coleford* are the principal mining towns of the forest. The Buckstone, a famous rocking-stone on a hill-slope overlooking the valley of the Wye, stands near the former of these towns.

Fig. 66.—CLIFTON SUSPENSION BRIDGE.



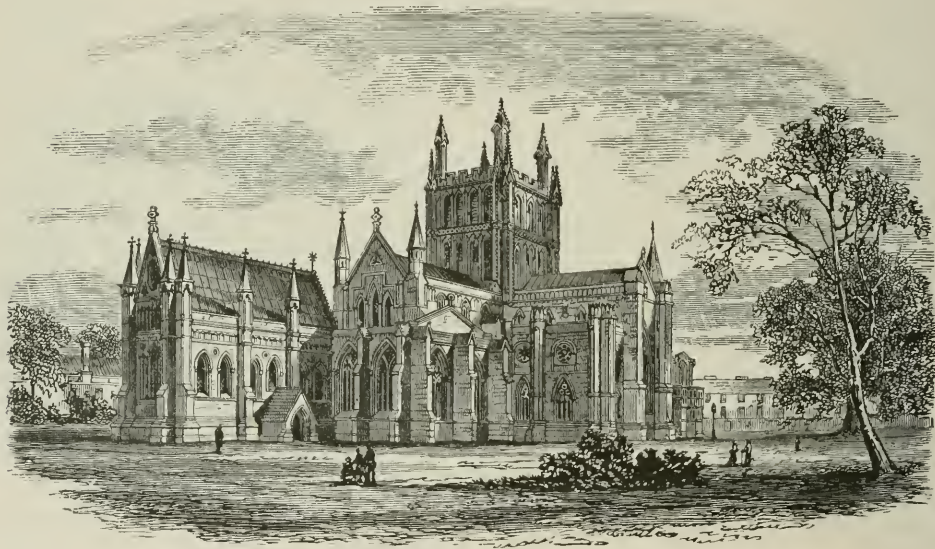
Cirencester is the principal town in that part of the county which is drained into the Thames. It is a place of great antiquity, the *Corinium* of the Romans, and its museum contains numerous Roman antiquities found in the neighbourhood. Cirencester carries on a large trade in wool and corn. Near it stands the Royal Agricultural College. *Lechlade*, near the confluence of the Colne and Lech with the Thames, and at the eastern termination of the Thames and Severn Canal, is a place of some traffic, but the other market towns in the north-eastern portion of the county enjoy only local importance. The chief amongst them are *Northleach*, *Winchcombe*, *Chipping Campden*, and *Stow-on-the-Wold*.

HEREFORDSHIRE, an inland county, has a surface beautifully diversified by hills, and set off to the greatest advantage by luxuriant woods. The Wye intersects it from the north-west to the south-east, and is joined about the centre of the county by the Lugg, draining its northern half. Agriculture and cattle-breeding

are almost the sole occupations, and the county is noted for its wool, its cider, and its hops.

Hereford, the county town, occupies a central position on the river Wye, and is one of the ancient "gateways" of Wales, formerly strongly fortified. Five railways converge upon it, and its trade in corn, timber, and hops is very considerable. The cathedral, founded in the eleventh century, and restored by Sir G. Scott, is one of the most interesting buildings of that kind in England, exhibiting various styles of architecture, from Norman to decorated work. To geographers more especially it is interesting, for in its chapter library is preserved one of the most valuable maps of the world which have come to us from the Middle Ages. M. d'Avezac, who has carefully studied this curious document, which transports monkeys to Norway, scorpions to the banks of the Rhine, and aurochs to Provence, believes that it originated in 1314, or at all events between

Fig. 67.—HEREFORD CATHEDRAL.



1313 and 1320. Hereford has not only played a part in the history of science, but it was likewise the birthplace of Garrick, and there Mrs. Siddons and Kemble commenced their dramatic career.

Lugwardine, a village to the east of Hereford, near the mouth of the Lugg, has a pottery and tile works. Ascending the Lugg, we reach *Leominster*, a town very important during the Heptarchy, with a fine old church, the remains of a priory, and several timbered houses. Leather gloves and coarse woollen stuffs are made here. *Kington* is a market town on the Arrow, which joins the Lugg from the west, whilst *Bromyard* is the principal town in the valley of the Frome, the eastern tributary of the Lugg.

Ross, on the Wye below Hereford, is a picturesque town much frequented by tourists, and well known as the birthplace of John Kyrle, Pope's "Man of Ross," who was buried in the parish church in 1724.

A small portion of the east of the county is drained by the Leddon, which flows into the Severn at Gloucester. *Ledbury* is the chief town on its banks, and Eastnor Castle, near it, contains a valuable collection of paintings.

SOMERSETSHIRE is a maritime county, bounded on the north and north-west by the Bristol Channel, and drained by the Avon (which divides it from Gloucestershire), the Axe, Brue, and Parret. An oolitic upland of irregular configuration separates the county from Dorset and Wiltshire, and coalesces near Bath with the Cotswold Hills. Two spurs jut out from this elevated tract towards the Bristol Channel, forming the Mendip and Polden Hills. The former are composed of mountain limestone and Devonian sandstone, have steep sides and flat tops, and contain veins of lead and copper, now nearly exhausted. They separate the valley of the Avon, a portion of which is occupied by the Bristol coal bed, from the low marshes intersected by the river Brue. This "Brue Level" contains peat, but parts of it are of exceeding fertility, and dairy-farming is successfully carried on in it. The Polden Hills separate this lowland from the more diversified valley of the Parret, which is rich in pasture-grounds, and yields an abundance of butter and cheese.

The western portion of the county is covered for the most part with wild and barren hills, abounding in bogs and moorland; but these are intersected by the rich and picturesque valley of Taunton Deane, one of the most fruitful districts of England. On the north this "vale" is sheltered by the Quantock Hills (1,270 feet high), the Brendon Hills, and Exmoor (Dunkerry Beacon, 1,706 feet), which separate it from the Bristol Channel; on the south the Blackdown Hills, crowned by a monument erected in honour of the Duke of Wellington, divide it from Devonshire.

Somersetshire has woollen, silk, and other factories: coal and a little iron ore are raised, but the wealth of the county is principally produced by agriculture, dairy-farming, and the rearing of cattle and sheep. Cheddar cheese is one of the most highly appreciated of its productions.

Bath, the largest town of Somersetshire, but not its county town, is situated in the beautiful valley of the Avon, and on the hills surrounding it, only a short distance below the gorge which the river runs through on its course to the plain. The fine abbey church, the pump-rooms, the baths, and the business part of the city occupy the valley, whilst on the hill-slopes terraces and crescents of handsome houses rise tier above tier. We perceive at once that we have entered one of those watering-places where the number of pleasure-seekers is greater than that of the invalids. As early as the time of the Romans these *Aque Sulis* were much frequented, and carved stones, showing Minerva in association with the British divinity Sulis, have been discovered. But Bath is no longer the "Queen of all the Spas in the World," to which position the genius of two men, Wood, the architect, and "Beau" Nash, the master of ceremonies, had raised it in the eighteenth century. The monumental buildings of that age have a forsaken look, and fashionable crowds no longer file through their colonnades and the grounds which surround them. Cheltenham, Malvern, and the seaside towns exercise a stronger attraction upon wealthy

bathers, and now Bath has become a place of residence for retired men of business in the enjoyment of a moderate competency. The cloth trade, formerly of very considerable importance, exists no longer, and though "Bath" paper still enjoys a high reputation, most of that consumed even in the town of its reputed manufacture is forwarded from London. Parry, the arctic navigator, is the most famous amongst the children of Bath, and down to the present day his achievements can hardly be said to have been eclipsed. Herschel, the famous astronomer, resided for a considerable time at Bath, earning his living as a musician, and it was there he began his career as a man of science.

Twerton, near Bath, carries on cloth and carpet weaving, whilst *Keynsham*, lower down on the Avon, has brass works and lias clay diggings. The principal coal mines of the county are near *Radstock* and *Midsomer Norton*, to the south of Bath, and *Long Ashton* and *Nailsea*, to the south-west of Bristol. Nailsea, in addition, carries on the manufacture of glass, and Ashton that of iron. But the principal manufacturing town of the northern part of Somersetshire is *Frome*, on a tributary of the Avon, and not far from the Wiltshire border. Its neighbourhood abounds in cloth-mills, and there are also a card factory and several breweries. *Portishead*, *Clevedon*, and *Weston-super-Mare* are watering-places, and the latter, since the beginning of the century, has grown from a small fishing village into a town of considerable importance. Seated upon a capacious bay, with an outlook upon the fortified islands at the mouth of the estuary of the Severn, facing the coast of Wales, sheltered by the wooded scarps of Worle Hill (540 feet), and backed by a fruitful country abounding in picturesque scenery, it enjoys peculiar advantages. The sprat fishery is still carried on here from October to Christmas, as in days of yore.

Several interesting old towns are seated at the southern foot of the Mendip Hills. *Axbridge* is a very ancient little borough, with the population of a village. *Cheddar* is no less famous for its cheeses than for its cliffs and stalactite caverns. A lead mine is near it. *Wells* is a town almost purely ecclesiastical, its principal edifices being the cathedral, the bishop's palace, and dependent buildings. Brush and paper making are carried on. Near it, close to the source of the Axe, which bursts forth here a considerable stream, is a famous cavern, the legendary haunt of the "Witch of Wookey." *Shepton-Mullet* carries on trade with timber, and brews an excellent ale.

Glastonbury, the principal town on the river Brue, which enters the Bristol Channel below the small port of Highbridge, is best known for the ruins of its old abbey, the most remarkable portion of which is the "Abbot's Kitchen," a building reproduced at Oxford and in other towns.

Bridgwater is the principal town on the Parret. It is situated 12 miles above the mouth of that river, on the borders of a marshy plain, carries on a brisk coasting trade, and is the only place in the world where the clay and sand deposited at some localities on the river-side are made into "Bath bricks." The most highly prized Art treasure of this town appears to be a painting of the "Descent from the Cross," found on board a French privateer, and now suspended over the altar of

the church of St. Mary Magdalen. Sedgemoor, where Monmouth was defeated in 1685, lies to the east of the town. Ascending the Parret, we reach *Langport*, just below its confluence with the Isle and Yeo, or Ivel. The latter runs through a fertile valley, the chief towns of which are *Ilchester*, the *Ischalis* of the Romans, and the birthplace of Roger Bacon, and *Yeovil*, a picturesque old place, with a noble church, where gloves are largely made. The towns on the Upper Parret are *South Petherton*, near which are the famous Hamden or Hamhill quarries, and *Crewkerne*, with a handsome church and grammar school. *Ilminster* and *Chard*, both on the Isle, engage in lace-making. The latter is a handsome town, at the foot of the Blackdowns.

Taunton, the county town, on the Tone, is a place of considerable antiquity, with one of the finest perpendicular churches in the country, and a grammar school, founded in 1522 by Bishop Fox. There are two silk factories, the manufacture of silk having superseded that of wool since 1778, and a glove factory. The castle forms an object of considerable interest. Its hall, where Judge Jeffreys held his "Bloody Assize," now affords accommodation to the museum of the Somersetshire Archæological and Natural History Society. *Wellington*, on the Upper Tone, and at the northern foot of the Blackdowns, still engages in the woollen trade. It has given a title to the Great Duke, in whose honour a stone obelisk has been raised on a neighbouring height.

There remain to be noticed a few small towns on the coast of the Bristol Channel and to the west of the Parret. They are small in population, but interesting on account of their antiquity. *Watchet* exports the iron ore raised in the Brendon Hills. Near it are the ruins of Cleve Abbey, founded in 1188 for Cistercian monks. *Dunster* has a famous old castle; *Minehead* is a quiet watering-place; and *Porlock* is a picturesque village at the foot of Dunkerry Beacon.





CHAPTER V.

THE CHANNEL SLOPE.

DORSETSHIRE, WILTSHIRE, HAMPSHIRE, AND SUSSEX.

GENERAL FEATURES.



THE region which, to the east of the Cornish peninsula, slopes down to the Channel, is of considerable width only in its western portion, where the Avon of Salisbury rises on the chalk downs of Wiltshire. Here its width is no less than 50 miles, but it narrows as we proceed eastwards. The rivers become rivulets, and, on reaching the neighbourhood of the Straits of Dover, there are merely combs down which the water runs on the surface only after heavy rains. This region, nevertheless, is characterized by special features, due to its southern aspect, its deficiency in navigable rivers, and its geological formation. In the latter respect some portions of it bear a greater resemblance to France, from which it is now separated by the sea, than to the remainder of England, of which it actually forms part. The English Weald and the French Boulonnais, or country around Boulogne, are thus clearly the fragments of what was anciently a continuous tract of land, whose severance has been effected by the erosive action of the sea.

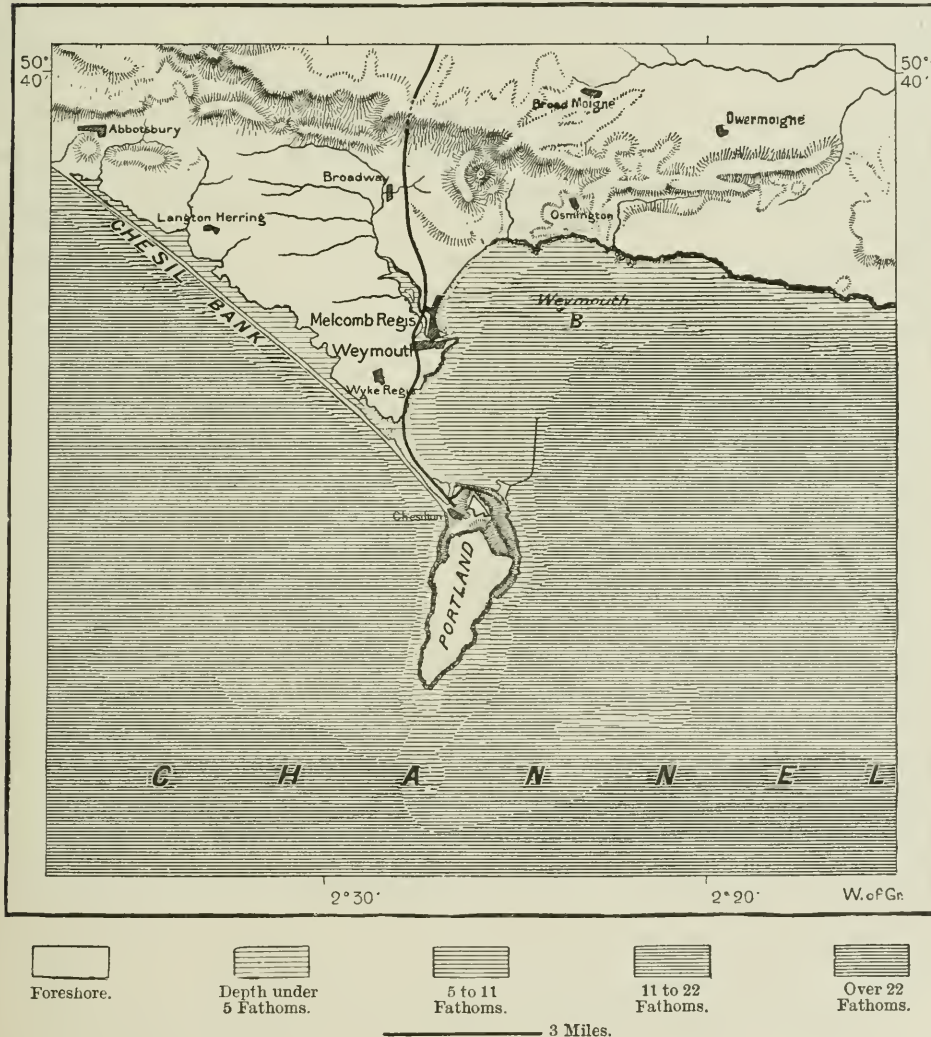
The calcareous uplands which to the east of Devonshire form the watershed between the Bristol and English Channels are generally known as the Dorset Heights. They are of moderate elevation, none of the summits attaining a height of 1,000 feet, but form bold cliffs along the coast. To geologists they have proved a fertile field of exploration, for they exhibit very clearly the superposition of various strata. The quarries of Lyme Regis have more especially acquired celebrity on account of the ichthyosaurians and other gigantic reptiles of liassic age which they have yielded. They are well known likewise to agriculturists, for the coprolite, or fossilised guano, in which they abound contains a large quantity of phosphoric acid, and furnishes a most powerful fertiliser.

The liassic rocks of Lyme Regis are succeeded in the east by oolite cliffs, which terminate in the Bill of Portland, right out in the open sea. The so-called Isle of Portland is in reality a peninsula rising superbly above a submarine plateau,

where conflicting tides render navigation dangerous, and attached to the main-land by a narrow strip of beach. Rooted to the base of the cliff crowned by Burton Castle, this beach extends along the coast, growing wider by degrees as we follow it to the south-eastward, and forming a gentle curve, the concave side of which is turned towards the sea. It is known as Chesil or

Fig. 68.—PORTLAND.

Scale 1 : 225,000.



“Pebble” Bank, and hides all the irregularities of the inner coast-line. The old inlets and creeks in its rear have gradually been converted into swamps, or silted up by the alluvium washed into them by the rivers, and only for a distance of 8 miles along the coast of Dorsetshire is it separated from the main-land by a narrow channel which debouches into Portland Roads, and is known as the Fleet. But it is not only this striking regularity of contour which distin-

guishes this beach; it is equally regular with respect to the arrangement of the materials of which it is composed. Its pebbles increase in size as we proceed from west to east. The sand in the west almost imperceptibly passes over into pebbles, and in the vicinity of the Isle of Portland these latter give place to shingle. The fishermen along the coast will inform you that when they land on a dark night on any part of the beach they can tell, from the size of the pebbles, at what spot they find themselves. The true explanation of the phenomenon is this: the tidal current runs strongest from west to east, and its power is greater in the more open channel, or farthest from the land, while the size of the fragments which are carried to the east and thrown ashore is largest where the motion of the water is most violent.*

To geologists the Isle of Portland offers a peculiarly interesting field of research, for it is rich in dirt beds containing organic relics of marine origin, and still exhibits the fossilised remains of a forest which flourished on the emerged oolite rocks. It is probable that not a single one of these fossils will escape the notice of man, for few rocks are being more extensively utilised. The upper layers are being carried away to be converted into lime, whilst the lower beds supply a highly valued building stone, which has been largely used for some of the monumental edifices of London. In recent times most of the stone quarried on the "island" has been employed in the construction of a breakwater planned towards the close of the last century, but only commenced in 1847, mainly with the view of opposing to the French Cherbourg an English Cherbourg of even greater strength. This prodigious breakwater is the largest work of the kind ever undertaken, for nearly 6,000,000 tons of stone have been sunk in the sea to protect against winds and waves an artificial harbour having an area of 2,107 acres, where the largest men-of-war find secure riding-ground. The first portion of the breakwater runs from the shore due east for about 1,800 feet, and serves the inhabitants of the island as a promenade. Then comes an opening of 400 feet, beyond which the main section stretches 6,000 feet in length, terminating in an ironclad fort armed with the heaviest guns. The summit of Verne Hill (495 feet) is crowned by impregnable fortifications, armed with one hundred and fifty cannon, and this citadel, supported by numerous batteries, by a fort on Nothe Hill, near Weymouth, and by two ironclad forts on the breakwater itself, amply provides for the security of the harbour. Breakwaters and forts alike have been constructed by convicts, and this colossal work of modern England, like similar undertakings of ancient Egypt and Rome, has thus been accomplished by the hands of slaves.†

But though man may modify the aspects of nature by converting an open bay into a secure harbour, what are his feeble efforts of a day in comparison with the slow, but incessant erosive action of a single geological period? Beyond the island of Portland and the oolitic rocks of the littoral region, the cretaceous formation extends uninterruptedly as far as Salisbury Plain. That "plain"

* Lyell, "Principles of Geology." Prestwich, at the Institution of Civil Engineers, February 2nd, 1875. Kinahan, *Quarterly Journal of the Geological Society*, February 1st, 1877.

† The work occupied about a thousand convicts between 1847 and 1872, and cost £1,043,000.

is in reality a chalky table-land, rising now and then into gently swelling hills, and intersected by narrow and picturesque valleys. In its general features this tract of country presents an appearance of uniformity and repose, and we might almost fancy that for ages it had undergone no change. But geologists have here discovered the remnants of enormous strata, which have been gradually dissolved by water, and transported seaward. Extensive tracts of chalk are covered with a layer of pebbles more than a yard in depth, and these pebbles are all that remains of thick strata of calcareous rocks, the soluble portions of which have been washed away.* Elsewhere the ground is covered with scattered rocks, fragments of eocene hills destroyed through long-continued erosive action. These rocks, on account of their colour and appearance when seen from afar, are usually known as "grey wethers," but sometimes they are improperly described as "Druids' stones," because they furnished the material employed in the construction of Stonehenge. Towards the middle of the century these scattered rocks and the monuments raised by the aboriginal inhabitants were the only objects which, away from the towns and villages, contrasted with the uniform verdure of the pastures. Recently, however, this "plain," which was formerly roamed over only by sheep, has been invaded on all sides by the plough, and a considerable portion of it is now under tillage.

The zone of cretaceous rocks, of which the plain of Salisbury forms a part, bounds in the north a basin occupied by eocene formations, which stretches for 60 miles along the English Channel. Anciently this basin extended far beyond the actual line of coast. The whole of the northern portion of the Isle of Wight was included in it. The Celtic name of that island, *Guith*, is supposed to mean "severed," and an examination of its coast-line shows very clearly that it originally formed part of the mainland. The coasts of the island run nearly parallel to those of the mainland from which it has been cut off. The strait of the Solent on the west, and that of Spithead on the east, are bounded by coasts having the same inflections, and the Isle of Wight almost looks as if it were a fragment detached from England, and bodily shifted to the south. But though the eocene rocks to the north of the island have disappeared, and their place has been invaded by the sea, the cretaceous rocks which form its spine, and anciently extended to the cliffs of Purbeck, have offered a stouter resistance to erosive action. In the interior of the island they have been dissolved in many places by running water, and wide gaps resembling breaches in a rampart open between the hills, but the extremities of the rhomboid terminate abruptly in cliffs. The western promontory rises almost vertically to a height of 450 feet, and off it there stand above the glaucous waters of the sea, not unlike a flotilla of vessels under sail, a few masses of detached chalk, known as the "Needles." These rocks are exposed to the full fury of the gales, and from time to time they yield to the pressure and are broken into fragments. A remarkable case of this kind occurred during a violent storm in 1764, when a rock known as "Lot's Wife" disappeared beneath the foaming waves. In geological structure these

* Ramsay, "Physical Geology and Geography of Great Britain."

superb rocks resemble the cliffs of Purbeck, about 15 miles due west of them. Their image impresses itself firmly on the minds of many emigrants, and thousands amongst them, when these objects vanish from their sight, have looked upon Europe for the last time in their lives. The southern portion of the Isle of Wight is one of the most picturesque districts in England. St. Catherine's Down, the most elevated summit of the island, rises near its southern angle to a height of 830 feet, and commands an immense horizon, extending from Portland Bill to Beachy Head, and sometimes even beyond the Channel with its numerous ships, to the

Fig. 69.—THE ISLE OF WIGHT.

Scale 1 : 420,000.



hazy promontories of Cotentin, in France. To the east of this angular landmark the coast sinks abruptly, but along its foot there extends a singular strip, or terrace, of considerable width, which has fallen down from the upper part of the cliff, and is hence known as the Undercliff. This tract is perfectly sheltered from northerly winds; myrtles, geraniums, and other delicate plants flourish there throughout the winter; and Ventnor and other places of less note afford accommodation to invalids whose state of health requires a milder climate than is to be found in other parts of England.* The nature of the soil sufficiently accounts for the existence of this Undercliff. The subjacent beds, consisting of sand

* James Thorne, "The Land we Live in."

and clay, were undermined by the action of the rain, and the superincumbent masses of rock were precipitated upon the beach below, where they now act as a kind of embankment protecting the remaining cliff from the attacks of the sea. Some of these landslips occurred almost in our own time. In 1799 a farm, with about 100 acres of the surrounding land, slid down upon the beach, and more recently still, in 1810 and 1818, other cliffs broke away in a similar manner. The narrow ravines worn into the rocks by running water are locally known as "chines." Formerly they could only be explored with great difficulty, but steps and easy paths have been made to facilitate the progress of visitors in search of fine scenery.

The Isle of Wight, though scarcely more than half the size of Anglesey,* has played a more considerable part in the modern history of England. Unlike the Welsh island, it is not joined by bridges to the mainland, the dividing channel being too wide and too deep.† A tunnel, about 4 miles in length, has, however, been projected, and some preliminary surveys, with a view to its construction, have actually been made. But though the channel which separates the island from the mainland cannot yet be crossed dryshod, like Menai Strait, there are few localities more crowded with shipping. It forms a vast roadstead, fairly sheltered from most winds, and ramifies northward into the interior of Hampshire. This northern extension of the road of Spithead is known as Southampton Water, from the great outport of London which rises near its extremity, and which is exceptionally favoured by the tide; for whilst one tidal wave penetrates it through the Solent, another arrives soon after through the channel of Spithead, sustaining the first, and extending the time of high water. But the commercial town of Southampton is not the only place that has profited by the excellent shelter afforded by the Isle of Wight; the advantages of the position are also shared by the naval station of Portsmouth. This great stronghold has been constructed on the flat island of Portsea, at the entrance to the waters of Spithead.

The road of Spithead, Southampton Water, and the towns which have arisen upon them, render this portion of the English sea-coast of considerable importance, and jointly with the beauty of the scenery and the mild climate, they have attracted to it a large business or pleasure-seeking population. Nevertheless, a wide tract of country, stretching from Southampton Water westward to the Avon of Salisbury, is still occupied by a deer forest, and very sparsely peopled. This "New Forest" covers an area of 60,000 acres, and if ancient chronicles can be believed, it was planted by William the Conqueror, as a wild-boar and deer preserve and hunting ground. He is stated to have destroyed twenty villages, turning out the inhabitants and laying waste their fields. But owing to the poor nature of the gravel and sand of this tract, it is not likely that it was ever worth tilling. Eight hundred years ago there may have been more clearings and groups of houses, but we may well doubt whether so ungrateful a soil can ever have been extensively cultivated.‡

* Anglesey, 302 square miles; Isle of Wight, 155 square miles.

† Least width, 9,200 feet; depth at the mouth of the Solent, 72 feet.

‡ Ramsay, "Physical Geology and Geography of Great Britain."

To the east of the flat islands of Portsea and Hayling, and of the low peninsula terminating in Selsey Bill, the coast gradually approaches the range of cretaceous hills known as the South Downs. Beyond Brighton cliffs once more bound the encroaching sea, until the downs terminate abruptly in the bold promontory of Beachy Head. The short and savory herbage of the South Downs feeds a race of

Fig. 70.—PORTSMOUTH.

From an Admiralty Chart.

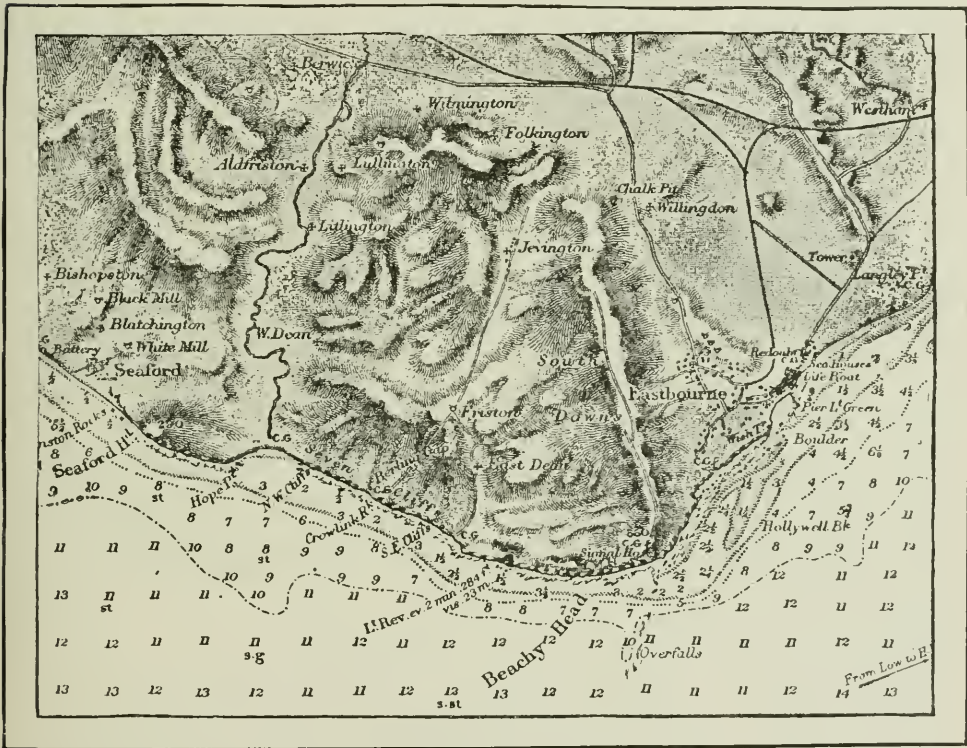


sheep highly appreciated for their mutton. Now these downs only present us with scenes of rural peace, but, to judge from the fortifications which crown nearly every point of vantage, there must have been a time when the country was the scene of almost incessant wars. The most famous of these entrenchments is the Poor Man's Dyke, on a commanding height to the north of Brighton, which in a more superstitious age was looked upon as a work of the devil.

The South and North Downs enclose between them the triangular Weald valley,

upon whose denuded surface are exposed rocks of more ancient date than the chalk of the surrounding downs. When the Normans invaded England, the Forest, or "Weald," of Andred, or Andredes, still covered the whole of this region, but the trees have been cut down and converted into charcoal, and consumed in the smelting furnaces erected near iron pits which have long since been abandoned as unprofitable. The clays, sands, and limestones of this district were in all probability deposited in the delta of some river equal in volume to the Ganges or Mississippi. Its hardened alluvium contains in prodigious quantities the débris of terrestrial plants, marsupials, terrestrial reptiles and amphibiæ, mixed with the remains of fishes, turtles, and fresh-water shells. It was to the south of this ancient delta, in Tilgate Forest, near

Fig. 71.—BEACHY HEAD.
From an Admiralty Chart.



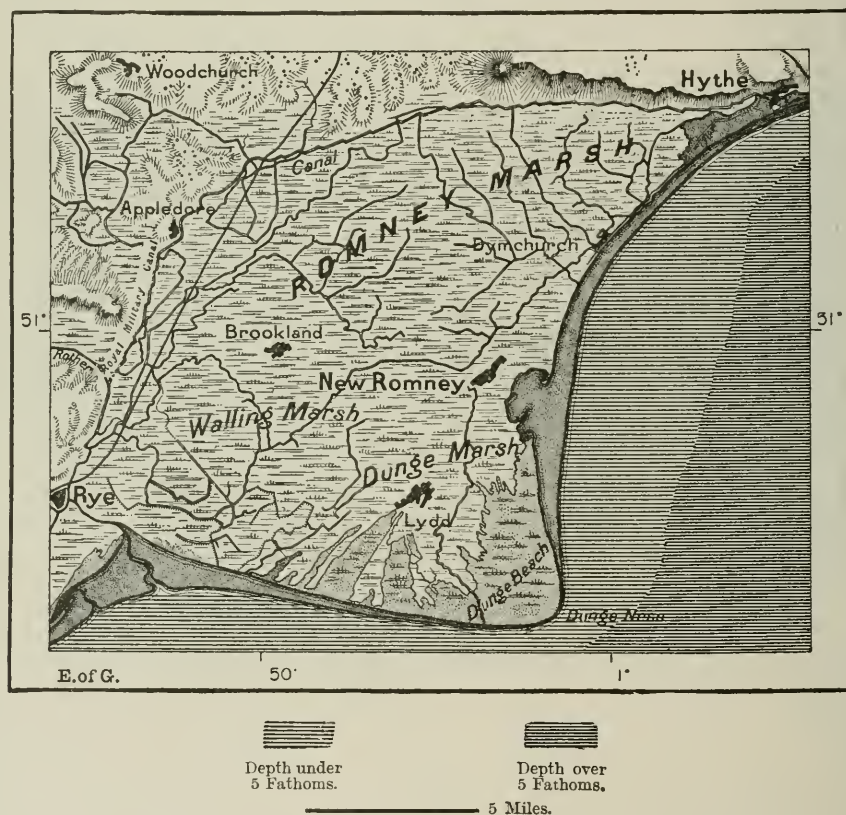
Lewes, that Dr. Mantell discovered the first skeleton of the gigantic *Iguanodon*, an herbivorous land reptile.

The range of the Northern Downs which separates the Weald from the valley of the Thames terminates in the east with the cliffs of Folkestone and Dover, but is continued on the other side of the strait in the hills to the east of Calais. All that part of England is being encroached upon by the sea, which is constantly undermining the cliffs. In many parts the footpath which conducts along their summit terminates abruptly in front of a newly formed precipice, and the traveller desirous of passing beyond is compelled to strike out for himself a new path through the herbage, farther away from its edge. It is more especially the cliffs

on the Straits of Dover which are exposed to this waste, and Shakspeare's Cliff; since the day Julius Cæsar set his foot upon the shore of England, is supposed to have receded no less than a mile and a half.* Old chronicles tell us of fearful landslips, which shook the town of Dover, and caused the country for miles around it to vibrate. A railway tunnel passes through one of these cliffs, and it was found advisable to secure the cliff from further encroachments by precipitating its summit into the sea, so as to form a kind of breakwater. By the blasting operations carried on with this view, a huge mass of rock, of a presumed weight of a million tons, was

Fig. 72.—ROMNEY MARSH.

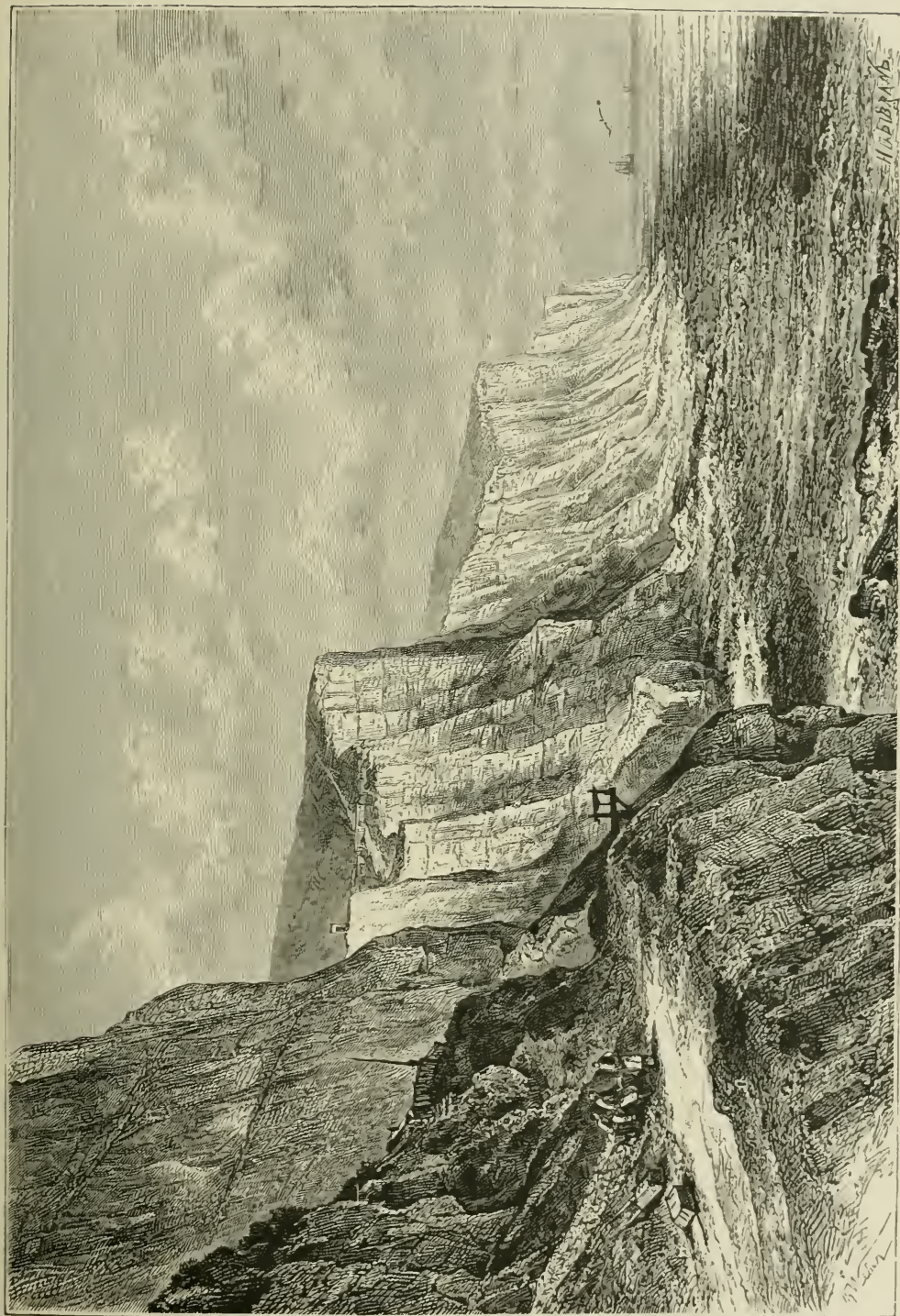
Scale 1 : 350,500.



detached, and, falling into the sea, formed a bank with an area of about 20 acres, upon which the waves now spend their force.

But whilst the sea is busily demolishing the cliffs of Dover and Hastings, it has gradually silted up the intervening level tract. The triangular plain thus formed juts out beyond the general line of the coast, and terminates in Dungeness. Nowhere else is it possible to meet with a more striking illustration of the influence which the strength and direction of the tides exercise upon the formation of a coast-line. This Romney level, named after a town in its centre, would never have been formed if the English Channel and the North Sea were not placed in

* Beete Jukes, "School Manual of Geology."



CLIFFS EAST OF DOVER.

communication by the Straits of Dover. It owes its existence to the fact that at this spot the tidal wave proceeding from the Atlantic is met and stopped by another tidal wave, propagated from the North Sea. The waste of the cliffs of Hastings, held in suspension by the water, cannot, consequently, pass beyond this point, where opposite tides neutralise each other, and it is therefore deposited along the coast of the Romney Marsh, which is thus continually increasing in extent. Dungeness, its extreme point, is supposed to advance annually about 5 feet into the sea.

Agriculture and sheep farming are the principal occupations in that part of England which extends from Cornwall to the Straits of Dover. There are no really large towns besides Southampton, Portsmouth, and Brighton, and these only flourish because in one way or other they are dependencies and outposts of London. Reduced to their own resources, they would soon sink to a secondary rank.

TOPOGRAPHY.

DORSETSHIRE is a maritime county, pleasantly diversified, and in the enjoyment of a dry and salubrious climate. A considerable portion of its area is occupied by chalky downs, which extend from the coast at Lyme Regis to Cranborne Chase, a wooded tract on the border of Wiltshire, and attain their greatest height (910 feet) in Pillesdon Pen, to the west of Beaminster. Lesser ranges extend along the sea-coast, and end in the isles, or rather peninsulas, of Portland and Purbeck. The chief rivers are the Frome and the Stour. The former enters Poole Harbour; the latter traverses the fruitful vale of Blackmore, and finally passes into Hampshire, where it joins the Avon. The so-called Trough of Poole is a low-lying district around Poole Harbour, abounding in peaty mosses. Agriculture and dairy-farming are the principal industries.

Lyme Regis, close to the Devonshire border, romantically seated in a deep comb opening out upon the sea between cliffs of forbidding aspect, is a favourite watering-place. The neighbouring village of Charmouth has its Undercliff, like Ventnor, in the Isle of Wight, and there are other landslips in its neighbourhood.

Bridport, 2 miles above the small harbour formed by the river Brit, is an ancient but somewhat decayed town, where flax-spinning and ship-building are carried on. Higher up the beautiful and fertile valley of the Brit, in the midst of the hills, there stands the small market town of *Beaminster*.

Chesil Bank, which connects the mainland with the Isle of Portland, commences at the mouth of the Brit. *Portland*, with its fortifications, its convict prison, quarries, and magnificent breakwater, has already been referred to (see p. 122). On the western side of the capacious bay, now protected by this great work of engineering skill, *Weymouth* is seated, with its aristocratic suburb of *Melcombe Regis*. Like Bridport, it has had its period of decay, but its beach, so well adapted for sea-bathing, the beauty of the surrounding country, and the advantages conferred upon it by its well-sheltered harbour could hardly fail of once more restoring it to prosperity.

Dorchester, the county town, on the Frome, was anciently known by the Celtic name of *Durnovaria*, and after the invasion of the Romans it was fortified by them. It is a quiet, prosperous place, its most remarkable building being the pinnacled tower of the church at the point of intersection of its four streets. In its neighbourhood there exists the most perfect Roman amphitheatre in England. It is known as Mambury, and is in so fair a state of preservation for open-air performances that a witch was burnt in its centre as recently as 1705, when a large crowd attended the spectacle. Flowing past the ancient town of *Wareham*, and its magnificent earthworks, which have resisted the onset of many a Danish attack, the Frome enters the shallow harbour of *Poole*, which is the principal seaport of the county, foremost amongst its exports being potter's clay, from the neighbouring isle of Purbeck, and pitwood. Ship-building is carried on, oysters are bred, and there are a few potteries in the neighbourhood. The Isle of Purbeck, on the southern side of Poole Harbour, must ever form a focus of attraction to geologists, who will find in the museum of the small but ancient village of *Corfe Castle* a collection of the most interesting fossils yielded by the district. *Kimmeridge* is a village well known to geologists on account of its clay, but the chief place of the isle is *Swanage*, a favourite watering-place in summer, because it is exposed to the cooling breeze from the north-east.

The Stour, in its course through the county, runs past *Blandford Forum* and *Wimborne*, the latter famous for its minster, a building of singular beauty. At *Kingston Lacy*, 2 miles to the north-west of the town, there stands an obelisk brought thither from the island of Philæ. *Shaftesbury*, traditionally one of the oldest towns in the kingdom, where King Alfred founded a nunnery in 880 for one of his daughters, stands on the margin of the fruitful vale of Blackmore.

Sherborne is the only town of the county which lies beyond the Channel basin. It is seated on the river Yeo, which finds its way into the Bristol Channel. It was a bishopric until 1058, and still boasts a fine cathedral to remind it of its days of grandeur, a famous grammar school, and several curious old dwelling-houses. Glove-making is carried on both here and in the neighbouring town of Yeovil, in Somersetshire.

WILTSHIRE is an inland county, which lies only partly within the basin of the English Channel. Its southern and more extensive portion forms the so-called plain of Salisbury, an undulating chalky table-land, drained by the river Avon and its tributaries, and lying at an elevation of about 500 feet above the level of the sea. The northern escarpment of this table-land looks down upon the vale of Pewsey, the most fertile tract of the county, on greensand, and bounded on the north by the Marlborough Downs, a treeless tract of chalk hills, presenting features similar to those of Salisbury Plain. The north-western part lies within the basin of the Severn, and is drained by the Bristol Avon; the north-eastern part belongs to the basin of the Thames. Foremost amongst the productions of Wiltshire are cheese, bacon, and mutton, and the manufacture of cloth is extensively carried on in the valley of the Bristol Avon. Some iron ore is raised in the neighbourhood of Westbury and Melksham.

Salisbury, the county town, is favourably situated at the confluence of three streams—the Upper Avon, Bourn, and Wiley. Its foundation only dates back to the thirteenth century. *Old Sarum*, which down to the reign of Henry III. was one of the most important towns of the kingdom, exists no longer; but for more than five hundred years after it had ceased to be inhabited it retained the privilege of returning two members to Parliament, who were virtually the nominees of the lord of the manor. Its site is marked by a conical knoll, about 2 miles to the north of the modern town. Salisbury is now one of the cleanest towns in the kingdom, but as recently as 1840 it was a

Fig. 73.—SALISBURY CATHEDRAL.



poor place, with numerous unsightly brick houses covered with thatched roofs. It has grown more sightly since, but all its modern buildings are thrown into the shade by its famous cathedral, the finest Gothic church in England, and the only cathedral in the country of which the nave was erected in the course of a single generation. It was finished in 1258, in the purest pointed style, then only recently introduced, and in accordance with the original conceptions of its architect. Its spire, the loftiest in England, rising 400 feet above the pavement, although not built for a century after the nave had been completed, so far from disfiguring it, is one of the most imposing objects of which Gothic architecture can boast. The nave and north porch have recently been restored to the condition

in which they were before the Puritans robbed them of their numerous ornaments. The cloisters and adjoining chapter-house, octagonal in form, and with a vaulted roof supported by a central pillar, need not fear comparison with similar structures in other parts of the world.* The Salisbury Museum contains Dr. Blackmore's collection of prehistoric remains, the valuable American collections of Squiers and Davis, and numerous other objects of interest. Amongst its remains of

Fig. 74.—SALISBURY AND STONEHENGE.

Scale 1 : 168,000.



mediaeval architecture, the finest example is a banqueting hall, built about 1470 by John Hall, a wool-stapler, and now used as a china store. Salisbury carries on a large trade in wool, and manufactures a little cutlery. Important sheep fairs are held at the village of *Britford*, a couple of miles to the south of it. *Wilton*, to the westward, at the confluence of the Wiley and Nadder, has a carpet factory, and

* Amédée Pichot, "L'Irlande et le pays de Galles."

a seat of the Earl of Pembroke, famed for its marbles and Vandycks. *Wardour Castle*, a venerable pile in a finely wooded park, rises on the Upper Nadder, and is rich in art treasures.

Warminster is the most important town in the valley of the Wiley, and its neighbourhood abounds in entrenchments attributed to the ancient Britons. But far more interesting than either of the places named are the circles of stones to the west of the ancient town of *Amesbury*, on the Upper Avon, and in the very centre of the plain of Salisbury. These "hanging stones," formerly known also under the name of "dancing giants,"* were originally arranged in two circles and two ellipses, having an altar for their common centre, but now present the appearance of a confused pile of enormous rocks. Most of these stones are such as occur on the plain, but some of the smaller ones appear to be erratic boulders, probably conveyed hither from Devonshire. Roman and British pottery have been found in the neighbourhood, which abounds in barrows, or sepulchral tumuli, but these remains have not hitherto shed any light upon the origin of Stonehenge.†

Northern Wiltshire lies within the basins of the Bristol Avon and Thames. *Devizes* is the principal town of the fertile vale of Pewsey, which extends between the downs of South and North Wiltshire, and is traversed by a canal connecting the Thames (Kennet) with the Bristol Avon. Devizes carries on a considerable trade in corn and cloth. Its museum, the property of the Wiltshire Archæological and Natural History Society, is more especially rich in fossils. *Seend*, a village to the west of Devizes, has iron foundries.

Fig. 75.—STONEHENGE.



The Bristol Avon traverses the manufacturing district of the county, which shares in the clothing industry of Western England, the principal seats of which are gathered round the Cotswold Hills. *Malmesbury*, a decayed town on the Upper Avon, with a fine abbey church, does not participate in the prosperity of the towns on the lower course of the river. *Chippenham*, in some respects the most important amongst these latter, is celebrated for its cheese and corn markets, and successfully carries on the manufacture of cloth, agricultural machinery, and condensed milk. The bridge which here spans the Avon is a venerable structure, built probably in the latter part of the twelfth century, *Calne*, a town famous for its bacon, lies to the east. The Lansdowne column crowns a lofty promontory of chalk in its neighbourhood. It stands within the area of Oldbury Castle, an entrenchment to which the Danes are supposed to have retired after their defeat by Alfred in the battle of Ethandune. A huge White Horse, 157 feet in length, and visible at a distance of 30 miles, was cut into the chalky ground, in 1780, by an enthusiastic physician of Calne, to commemorate this victory. *Laycock*

* Thomas Wright, "The Celt, the Roman, and the Saxon."

† Rich. Colt Hoare, "History of Wiltshire."

Abbey, to the south of Chippenham, was the property of W. H. Fox Talbot, the well-known inventor of Talbotype. *Corsham*, an old residence of the Saxon kings, lies to the east, and carries on an extensive trade in oolitic freestone, procured from quarries in its neighbourhood. *Melksham*, on the Avon, has a thriving cloth industry, but yields in importance to its neighbour *Bradford-on-Avon*, prettily situated on the slopes of the hill, and rich in quaint gable-fronted houses. Its most interesting building is the Saxon church of St. Lawrence, the only perfect Saxon church remaining in England. Bradford has been noted for many centuries for its fine broadcloth, and kerseymeres were first made here, but the cloth industry is now carried on more extensively in the neighbouring town of *Trowbridge*, which crowns the summit of a lofty rock on the banks of the Bliss, a southern feeder of the Avon. Higher up on that river are the iron mines and furnaces of *Westbury*.

The Thames, or rather Isis, traverses the northern extremity of the county, running past the ancient town of *Cricklade*, the centre of an extensive parliamentary borough. *Old Swindon*, in a pleasantly diversified grazing country to the south, is a pretty market town, which has risen into importance since the construction, by the Great Western Railway Company, of extensive workshops and stores. Most of the men employed by the company live in *New Swindon*, about a mile to the north of the old market town.

The river Kennet rises on the Marlborough Downs, which are not less rich in prehistoric remains than Salisbury Plain, and joins the Thames at Reading. *Marlborough*, the principal Wiltshire town in its valley, is a quaint old-fashioned place, with a famous college occupying the site of the Norman castle, and in close proximity to Savernake Forest, the domain of the Marquis of Aylesbury. Ascending the Kennet for about 5 miles, we reach Silbury Hill, a gigantic artificial mound rising to a height of 125 feet, and surrounded by a circle of *sarsen* stones. Tradition is silent as to the events which this structure is intended to commemorate. Close to it rises Avebury, girt by an earthen mound 170 feet in height, and an inner ditch. The area thus enclosed was originally occupied by stone circles, similar to those of Stonehenge, and perhaps of even greater antiquity, but as many of the stones have been removed, it is difficult now to trace the original arrangements.*

HAMPSHIRE, SOUTHAMPTONSHIRE, or HANTS, one of the most agreeable counties of England, has a varied surface and a mild and genial climate. A considerable portion of it is occupied by chalky downs, whose northern escarpments † look down upon the valley of the Kennet, whilst to the southward they slope towards the level tracts which border the English Channel. The valleys which intersect these downs contain much good land, and some of the finest water-meadows in England. The south-western portion of the county is almost wholly occupied by the sparsely peopled district known as the New Forest, where oak and beech trees abound, but which also includes large stretches of heath. The most populous towns have arisen

* Forbes Leslie, "Early Races of Scotland."

† Inkpen here attains a height of 970 feet.

on the capacious bays which indent the coast. Agriculture and sheep farming are the principal occupations, the manufactures being altogether unimportant.

The Salisbury Avon traverses the western extremity of the county. Flowing past the ancient towns of *Fordingbridge* and *Ringwood*, it enters the English Channel below *Christchurch*, a small seaport, the only attraction of which consists of a fine priory church. *Bournemouth* is an aspiring watering-place to the west of the Avon, much resorted to on account of its dry climate, but not so favoured as many other watering-places as regards picturesque scenery.

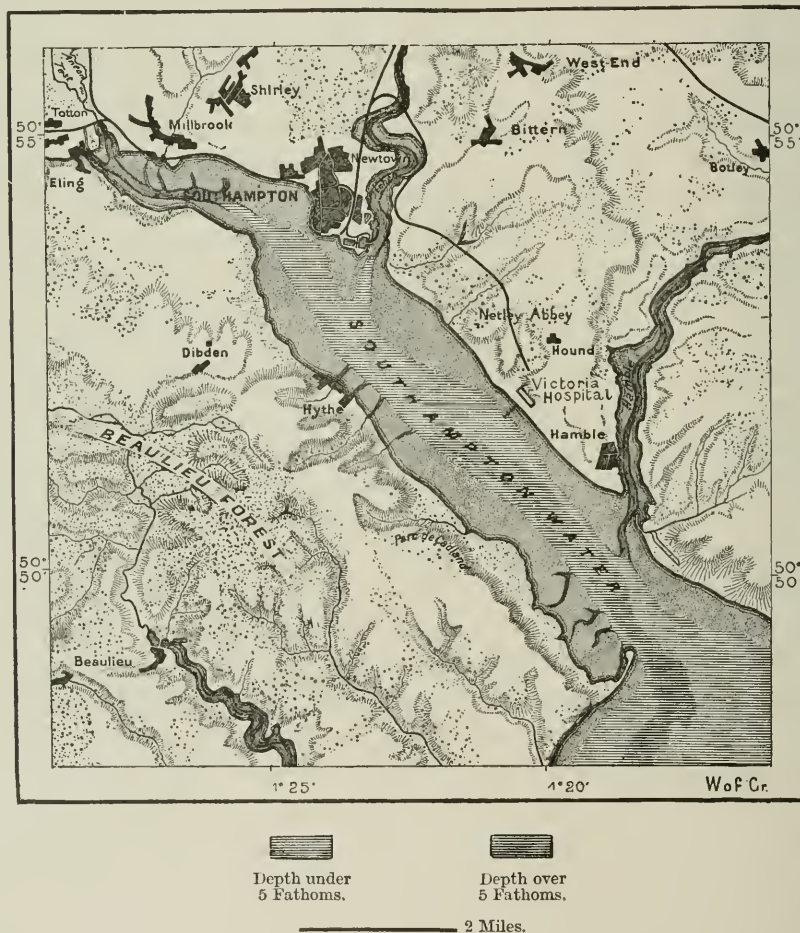
Lyndhurst, the capital of the New Forest, is a small town much frequented during the summer, because the neighbourhood is full of interest to the botanist and entomologist. On the skirts of the forest is *Lymington*, an outport of Southampton, with an inconsiderable coasting trade. Bay-salt is manufactured in its neighbourhood.

The peninsula at the head of Southampton Water, formed by the confluence of the Test and Itchin, is occupied by the town of Southampton. The Roman town of *Claesentum* lay to the east of the Itchin, its site being occupied now by the village of *Bittern*. The Test, or Anton, is a good trout stream. It rises above the old town of *Andover*, to the west of which lies the village of *Weyhill*, famous for its sheep and hop fairs, and runs past the towns of *Stockbridge* and *Romsey*. The latter boasts a noble abbey church. Adjoining it is *Broadlands*, the residence of the late Lord Palmerston, to whom a monument has been erected in the town. The Itchin washes the foot of a plateau upon which rises the ancient and illustrious city of *Winchester*, known as *Caer Guent*, or "White Town," in the time of the Britons, perhaps in token of its pre-eminence. During the century which preceded the invasion of the Romans immigrant Belgæ settled at Winchester, whence its Latin name of *Venta Belgarum*. The Saxons made it the capital of Wessex, and subsequently of the whole of England, and notwithstanding sieges and ravages, it retained its title until the twelfth century. For a long time afterwards it was looked upon as a kind of holy city, and Parliaments met there, and kings were crowned in its cathedral. The latter is its chief edifice, and recalls the time of its ancient supremacy. It has been built and transformed in various ages, and includes examples of all the styles of architecture—from the rude Norman to the most highly ornate decorated. The great western window occupies more than two-thirds of the height of this superb structure, and the light which penetrates through its stained glass falls upon mortuary chests, supposed to contain the bones of early Saxon kings. Winchester College, founded by William of Wykeham in 1387, is another remarkable monument of the Middle Ages, not so much on account of its architecture as of an adherence to ancient traditions in the system of education carried on within its walls. Of the old royal castle, originally built by William the Conqueror, only the wall and a subterranean passage remain. The palace which Charles II. erected is now occupied as a barrack. The Hospital of St. Cross, founded in 1136, lies about a mile to the south of Winchester, and the "wayfarer's dole," consisting of a horn of beer and a piece of bread, is still given to all who apply for it at the porter's lodge. Higher up on the Itchin is the market town of *Alresford*.

Southampton occupies so favourable a position between the estuaries of the Test and Itchin, and at the head of its long bay, that we need not wonder at the importance into which it has grown since England has permanently entered into intimate relations with the continent. Flemish refugees, driven by religious intolerance from their homes in the sixteenth century, introduced several branches of manufacture, including more especially that of cloth-weaving, but these industries deserted the town in the course of last century. The event which made South-

Fig. 76.—SOUTHAMPTON WATER.

Scale 1 : 160,000.



ampton what it is was the opening of the South-Western Railway. Placed thereby within a two-hours' ride of the metropolis, Southampton was enabled to make the most of the advantages which it offered to persons desirous of proceeding from London to foreign parts. By embarking at Southampton these travellers avoided the delay incidental to a passage through the Straits of Dover. That town became, in fact, the starting-point of the Indian and other mail-packets, and the docks excavated for their accommodation at the head of the peninsula, as well as

THE OVERLAND ROUTE TO AUSTRALIA.



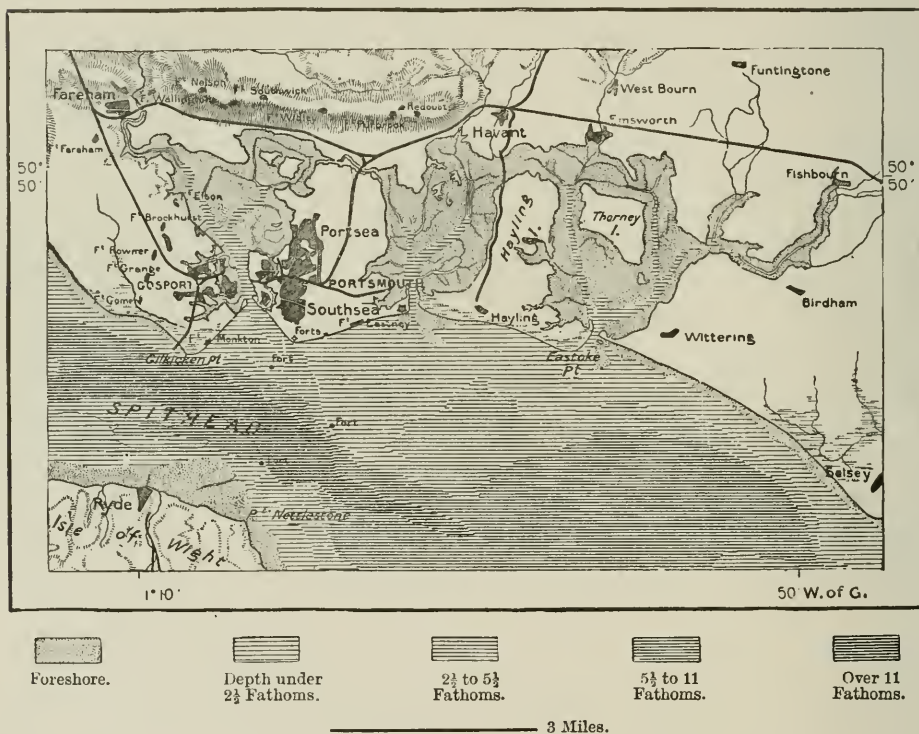
the roadstead, are at all times crowded with steamers. The stream of travellers which uninterruptedly passes through the town, the transshipment of merchandise, and the repair, outfit, and construction of ships have given an impetus to the industry of the place, which is causing it steadily to expand in the direction of *Shirley* and other neighbouring villages. "Bargate," which separates the lower from the upper town, is the most interesting relic of old Southampton. The Hartley Institution contains a museum, a library, and a School of Art, but geographers are more likely to feel interested in the Ordnance Survey Office, which is intrusted with the publication of the maps of the United Kingdom. Several thousand sheets, varying in scale from 6 feet to 1 inch to a mile, have already been published, but many years must elapse before this gigantic work can be completed, only to be begun *de novo*, for the surface of the country is perpetually changing, from natural causes no less than through the agency of man.

The eastern bank of Southampton Water is one of the loveliest and most salubrious districts in England, and no better site could have been selected for the great Naval and Military Hospital of the country, founded immediately after the termination of the Crimean war. Though christened in honour of Queen Victoria, this hospital is popularly named after the ruins of *Netley Abbey*, which are in its vicinity. It forms an outlying dependency of *Portsmouth*, which defends the mouth of the *Portus Magnus* of the Romans, opposite to the Isle of Wight. This great place of war, whose population fluctuates with the requirements of the naval authorities, consists in reality of three distinct towns, viz. Portsmouth, Portsea, and Gosport, the two former on Portsea Island, on the eastern side of the harbour, the latter opposite. The lines of fortification, however, include several suburbs and even outlying towns. *Southsea*, to the south of Portsmouth, facing the road of Spithead, is a new watering-place, with an aquarium and a fine esplanade. *Landport*, the northern suburb, leads to the Lines of Hilsea, which defend Portsea Island. Stokes Bay, with the watering-place of Anglesey, lies between the walls of Gosport and the detached forts. In it is the "measured mile" for testing the speed of Government vessels. Even *Porchester*, the ancient Roman station on the northern side of the bay, where there are the remains of a Norman castle, and the small port of *Fareham*, in its north-western corner, have been drawn within the new lines of defence. Portsmouth is now virtually one of the strongest fortresses in the world. The entrance to the harbour is defended by Southsea Castle and Fort Monckton, and by a number of ironclad forts raised upon artificial islands in Spithead Road, and armed with guns of the heaviest calibre. Two lines of detached forts defend the approaches to Gosport, and a chain of most powerful works crowns the heights of Portsdown, to the north of the harbour. These various works of defence are armed with 1,120 guns, and a garrison of 20,000 men is required to man them. They are well calculated to secure the safety of the docks and arsenals, which give shelter to England's most powerful men-of-war and a vast accumulation of naval and military stores. Portsmouth proper possesses but little to interest the visitor, except, perhaps, its garrison chapel, which formed part of the Hospital of St. Nicholas, founded in the

time of Henry III. ; but *Portsea*, with its floating basins, covers an area of 290 acres, and its arsenal, armory, and ship-yards abound in objects calculated to rivet the attention. Here may be seen the most perfect and ingenious machinery for making blocks, rivets, and bolts, and the amplest arrangements for the construction and repair of wooden and iron ships. Off the dockyard lies Nelson's celebrated flagship, the *Victory*, and looking northward, we discern, clearly standing out against the sky, an obelisk which has been erected in his memory. *Gosport*, besides large barracks, contains the Royal Clarence Victualling Yard, a huge establishment. Haslar Hospital, for sailors and soldiers, lies about a mile beyond the town. Life in Portsmouth may be said to be concentrated in the dockyard, to which the town

Fig. 77.—PORTSMOUTH AND APPROACHES.

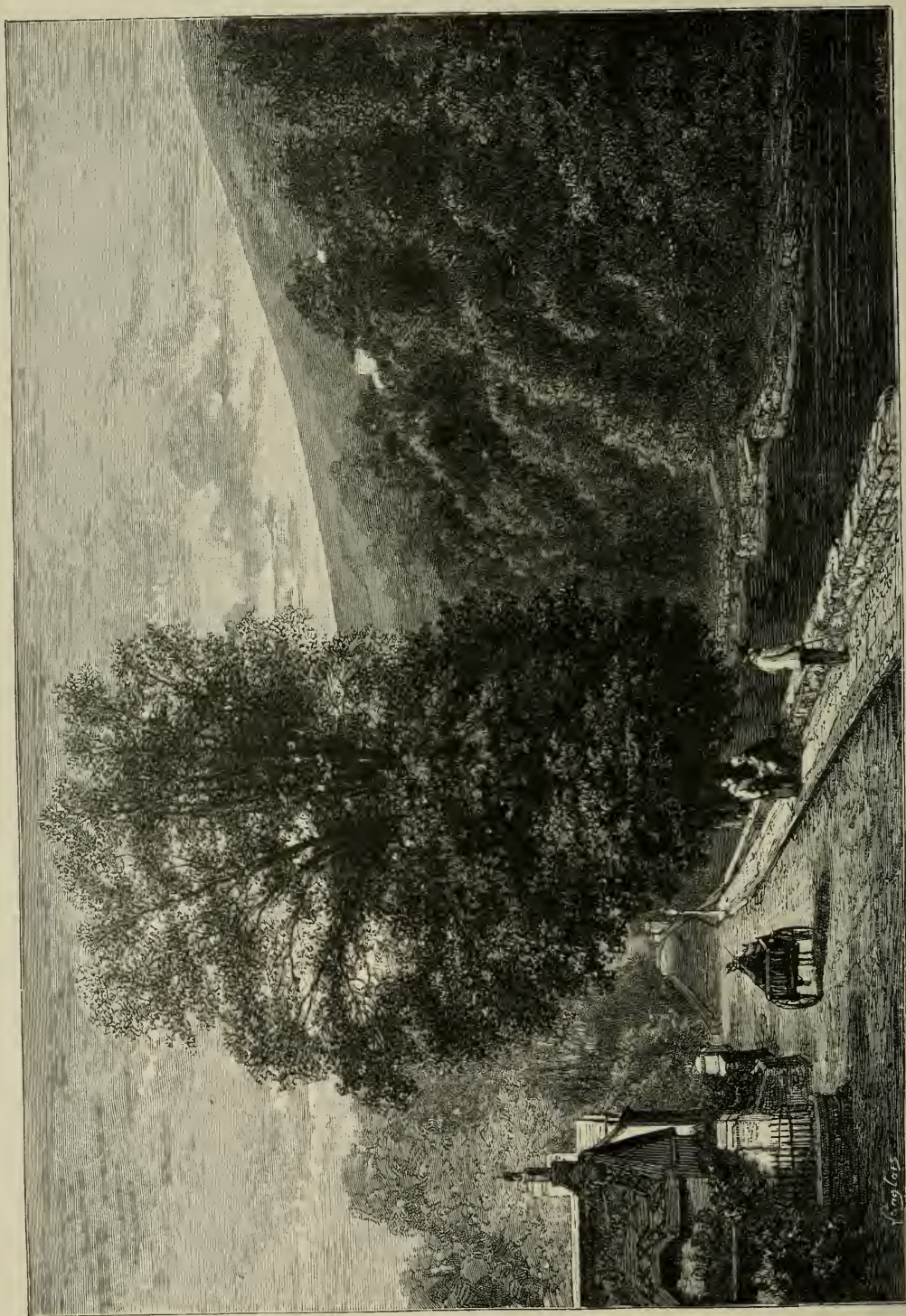
Scale 1 : 185,000.



is indebted for its prosperity ; but there remains a small surplus of energy for carrying on a not inconsiderable coasting trade. Charles Dickens is the most illustrious amongst the men born here.

Havant, at the head of Langston Harbour, to the east of Portsmouth, is a small market town ; whilst *Hayling*, on the flat island of the same name, aspires to the honour of being a watering-place, and engages in oyster-breeding. *Petersfield*, an old parliamentary borough, close to the Sussex border, is a pretty market town at the northern foot of the South Downs.

The north-eastern point of Hampshire lies within the basin of the Thames. Here are *Basingstoke*, *Alton*, and *Aldershot*. The first is the centre of one of



ISLE OF WIGHT—LAKE AT BONCHURCH.

the finest wheat and bean growing districts in England, which extends northward to Silchester, a village on the boundary of Berkshire. Silchester is interesting on account of the remains of a Roman amphitheatre. Alton, on the Upper Wey, is famous for its hops. Aldershot, since the establishment of a permanent military camp on the downs in its neighbourhood in 1854, has grown from an inconsiderable village into a populous town. The two military colleges of Sandhurst lie to the north of the camp, within the county of Berkshire.

Ryde, opposite Portsmouth Harbour, is the largest town of the Isle of Wight. It is altogether a town of pleasure, surrounded by gardens and villa residences, and the chief landing-place of the crowds of visitors annually attracted by the beautiful scenery of the island. *Newport*, the chief town, almost in the centre of the island, at the head of the estuary of the Medina, possesses few features of interest; but it adjoins the pretty village of *Carisbrooke*, commanded by a picturesque Norman castle, in which Charles I. was confined a prisoner, and his daughter Elizabeth died in 1650. The port of the Medina is at Cowes. If Portsmouth is the great resort of men-of-war, and Southampton a principal station for mail-steamers, West Cowes may feel some pride in being the head-quarters of the royal yacht squadron. Its regattas are the most famous in the world, and on these occasions the most expert seamanship may be witnessed, for the members of the Royal Yacht Club have in their service 1,500 of the best sailors England is able to furnish. Slatwoods, a villa near Cowes, was the birthplace of Dr. Arnold, of Rugby, and Osborne House is the marine residence of her Majesty Queen Victoria.

Sandown is a favourite resort on the south-east coast of the Isle of Wight. The road leads thence through the lovely village of *Bonchurch* to *Ventnor*, the chief place on the Undercliff. Bonchurch, in the opinion of Dr. Arnold, is "the most beautiful thing on the sea-coast this side of Genoa."

Freshwater Gate, Alum Bay (where sand is dug for the glass trade), and Yarmouth are favourite tourist haunts in the extreme west of the island, close to the famous "Needles."

SUSSEX, which preserves the name of a Saxon kingdom, is a maritime county belonging to two well-marked geological districts, viz. those of the Chalk and the Wealden. The chalky range of the South Downs extends through the southern portion of the county, from the borders of Hampshire to Beachy Head. It slopes down gently towards the sea, but presents a bold escarpment where it joins the Weald. To this latter the remainder of the county belongs, and it abounds in wild woodland scenery, unsurpassed in any other part of England. Most of the rivers which rise on the southern slope of the Forest Ridge, the backbone of the Wealden district, find their way to the sea through the downs by courses which they have hollowed for themselves. The soil of the Weald is for the most part a stiff tenacious clay, but along the sea-coast, in Pevensy Level and around Winchelsea, there occur extensive tracts of fine marsh land. Hops are raised in large quantities, and the county is justly celebrated for its fine breeds of sheep and cattle, and the excellence and abundance of its timber, oak being more prevalent in the Weald, and beech in the other parts. Ironstone exists, but it has not been

raised since the use of charcoal has been superseded by that of pit coal in the smelting and refining of iron. All the large towns are near the coast, and the central part very thinly peopled ; but with the exception of Hastings there is not one which can boast of fine scenery, and most of them are commercially unimportant, owing to the coast being singularly deficient in good harbours. Even *Chichester*, the Roman station in the country of the Regni, and subsequently the capital of the Southern Saxons, retains its importance chiefly on account of its fine cathedral, the only one in England which has a nave with four aisles. Goodwood Park and its famous racecourse are in the neighbourhood.

Bognor was founded in 1786 by a London hatter, as a rival of Bath. *Littlehampton*, at the mouth of the Arun, and *Worthing*, are small watering-places, frequented chiefly on account of the mildness of their climate, the facility of access from London, and the advantages which they afford for sea-bathing. The town of *Arundel* is situated 4 miles up the river Arun. Its magnificent castle is the baronial residence of the Duke of Norfolk, who has built a Roman Catholic Church, at the enormous cost of £100,000, which far surpasses in size and splendour the old parish church. *Cisbury Hill*, crowned by a British camp, lies to the north of *Worthing*, and within an easy walking distance is the village of *Tarring*, famous for its fig gardens, said to have been planted in 1145, and producing about 2,500 figs annually. *New Shoreham*, at the mouth of the Adur, which has opened itself a passage through the downs a few miles to the north at *Steyning* and *Bramber*, possesses a small tidal harbour, and carries on some coasting trade.

Brighton, whose houses and terraces extend for 4 miles along the coast, from Hove to Kemp Town, can neither boast of a beach presenting unusual facilities to bathers, nor is its climate very mild, nor the scenery of the surrounding country very attractive. It is indebted for its good fortune to the circumstance of having been built under the same meridian as London, and on a part of the south coast most readily accessible by rail. Brighton is, in fact, a mere suburb of London. It has grown into a populous town through the favour extended to it by the Londoners, and though having no other industries than its fisheries and the entertainment of visitors, it numbers 100,000 inhabitants, or 150,000 during the season, being in this respect the equal of many important manufacturing or commercial towns. Hundreds of merchants whose places of business are in London have chosen Brighton for their residence, and almost every morning they travel up to their offices, and return thither in the afternoon. By degrees Brighton has come to be looked upon as the queen of watering-places on the south coast of England, and its fine museum, in the curious Pavilion which George IV. erected as a marine residence, its unrivalled Aquarium, opened in 1872, schools, and other public institutions entitle it to rank amongst the foremost towns of England. Brighton has two piers, which jut out into the sea for a considerable distance. The town is supplied with excellent drinking water from the chalk hills which bound it on the north.

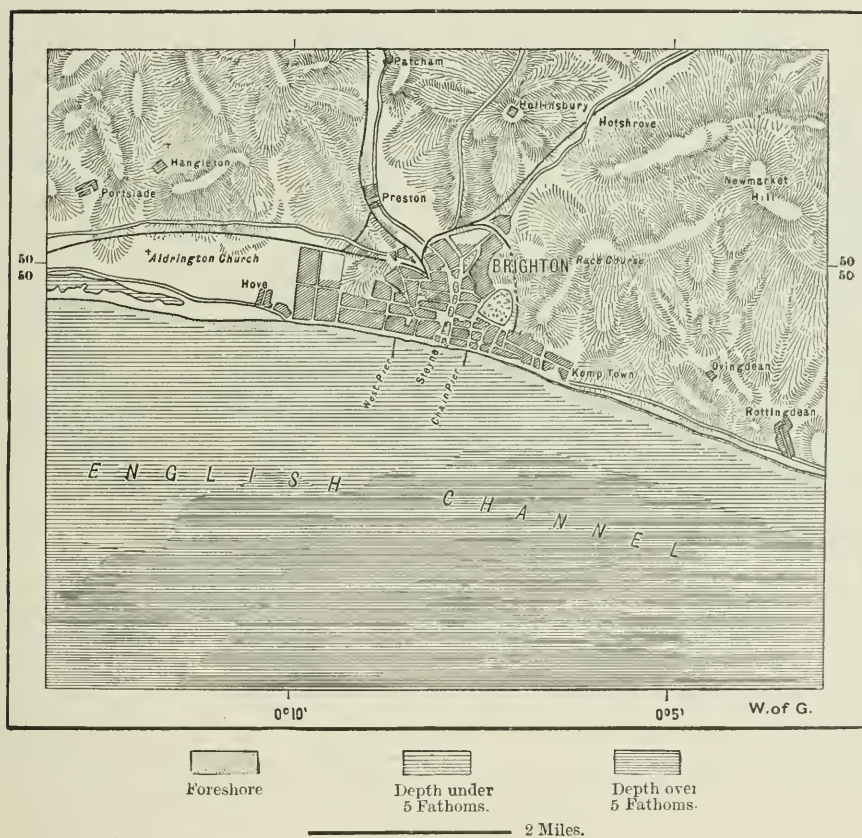
The old carriage road from London to Brighton runs through *Lewes*, an interesting town, at a gap in the South Downs, through which the Ouse finds its

way to the sea. A portion of the castle contains the museum of the Sussex Archæological Society. Mount Harry, the site of the defeat of Henry III. by Earl Simon de Montfort in 1264, lies 3 miles to the east of it. *Newhaven*, at the mouth of the Ouse, is merely an outport of London, whence there is regular communication with Dieppe. Close to the railway station may be seen a mill, the motive power of which is supplied by the tide. Formerly the Ouse entered the sea at *Seaford*, a quiet watering-place about 2 miles farther east.

Eastbourne, on the eastern side of Beachy Head, consists of an old village at

Fig. 78.—BRIGHTON.

Scale 1 : 120,000.

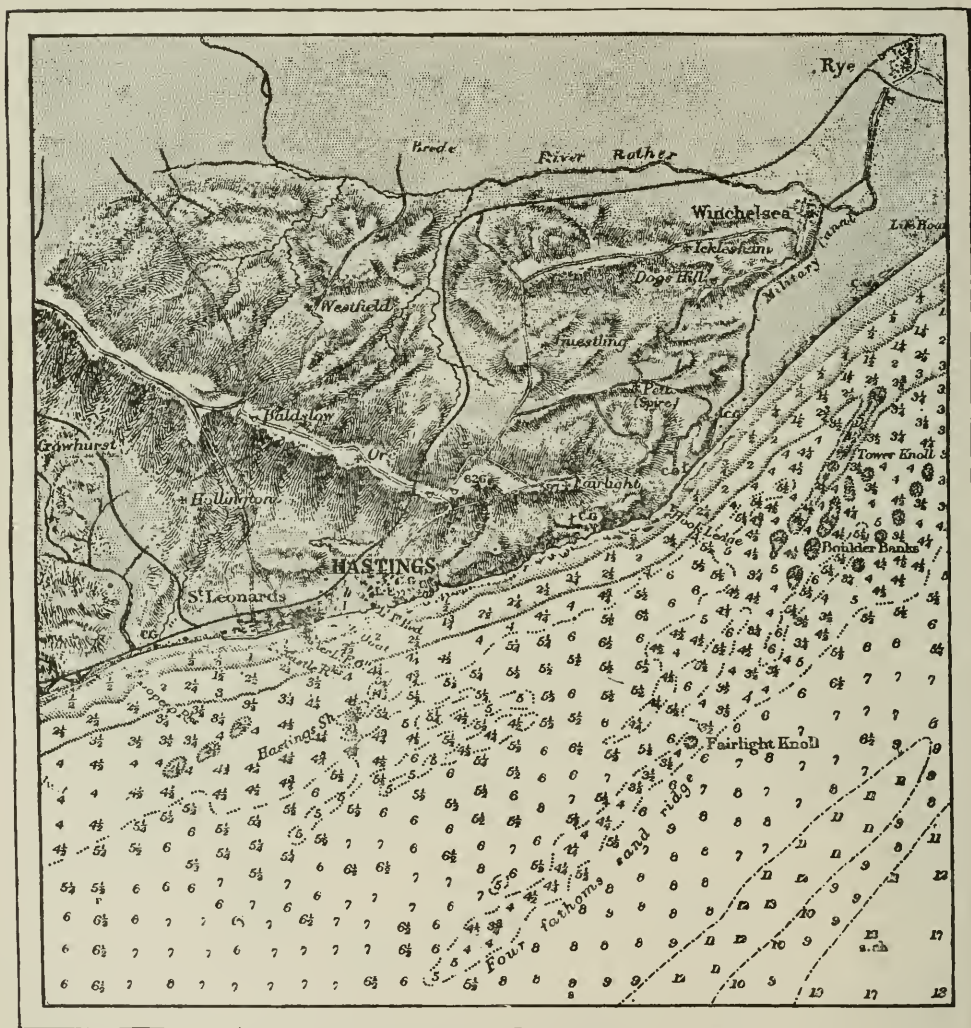


some distance from the sea, and a modern watering-place, far more quiet in appearance than are its rivals, Brighton and Hastings. But whilst the old village of Eastbourne has grown into a populous town, its neighbour *Perenssey*, on the site of the Roman *Portus Anderida*, and affiliated to Hastings as one of the Cinque Ports, has been deserted by the sea, and has dwindled into a poor village, whose houses nestle at the base of a Norman castle reared upon Roman foundations. As one of the Cinque Ports, Pevenssey was exempted from customs dues, and enjoyed special fishery rights, on condition of its providing a certain number of men-of-war

for the King's service. We may fairly doubt whether Julius Cæsar landed in Pevensey Bay, but there can be no question of its having sheltered, in 1066, the nine hundred vessels which brought William the Conqueror's host to England. It was from here he marched upon the village of Epiton, now known as *Battle*, where he overthrew the Saxons under King Harold. On the spot where the Saxon standard

Fig. 79.—HASTINGS.

From an Admiralty Chart.



was captured and King Harold fell, the victorious Norman caused an abbey to be erected, which he endowed with the prettily wooded land for a league around, and with numerous manors in other parts of the kingdom. At the village of Brightling, near here, a great boring for coal took place in 1876; the bore extended to a depth of 2,000 feet without reaching coal, but it passed through a bed of gypsum which is now being worked.

Hastings, whose Scandinavian name sufficiently indicates its origin, is, next to Brighton, the principal watering-place on the south coast of England, and far surpasses it in the picturesqueness of its surroundings. The old town is built at the mouth of a valley shut in between cliffs, one of which (the west) is surmounted by the remains of a castle. The modern watering-place coalesces with the western suburb of St. Leonards; but clusters of buildings have also sprung up on the surrounding hills, and these enjoy a climate radically distinct from that which prevails along the coast. Though formerly the most powerful of the Cinque Ports, furnishing no less than twenty-one vessels towards the fleet out of a total of fifty-seven, Hastings is now unimportant as a place of maritime commerce; but it still carries on its fisheries. *Winchelsea* and *Rye*, which from the time of King John enjoyed the same privileges as the Cinque Ports, are two interesting little towns in the marsh lands which stretch from Eastern Sussex into Kent. The former of these places lies 3 miles to the north-west of the ancient site of the town, which was submerged in 1287. Rye, like Winchelsea, has since been deserted by the sea, but still carries on some coasting trade through its outlying harbour, about a mile and a half to the east of the town. During the Middle Ages this town was much frequented, and on the revocation of the Edict of Nantes numerous Huguenots settled in it, and many of their descendants still live there. A huge church, an old tower, and a gate are the principal buildings likely to interest the antiquary.

Horsham, on the Upper Arun and to the west of St. Leonards Forest, the chief town in the Weald of Sussex, is remarkable on account of its wide streets planted with shady trees. All other towns in this district are of local importance only. *Midhurst*, on the Eastern Rother, is a dull market town; *Petworth*, to the east of it, attracts visitors on account of the art treasures stored in a neighbouring mansion called Petworth House; *Cuckfield* was of some importance as a stage on the high-road which connects London with Brighton; whilst *Uckfield* is deserving of notice for the charming woodlands which surround it.

A small portion of the county, to the north of the Forest Hills, lies within the basin of the Thames. Here *East Grinstead* is the most important town. It is a rising place, near the head of the Medway, in the midst of charming scenery, and is rapidly becoming a suburban residence of City merchants.

Dover and Folkestone both lie on the Channel slope, but will be described in connection with the county of Kent.





CHAPTER VI.

THE BASIN OF THE THAMES.

(OXFORDSHIRE, BERKSHIRE, BUCKINGHAMSHIRE, HERTFORDSHIRE, MIDDLESEX, SURREY, KENT, ESSEX.)



THE Thames is not the largest river of the British Islands, but in historical importance it has few rivals. The largest river of our globe, the Amazon, drains an area of 2,300,000 square miles, but within its basin there dwells not one tithe of the population which crowds the great city of the Thames valley. True the city we refer to is London, probably the greatest agglomeration of human beings which the world ever saw.

The river which flows past London rises within a short distance of the Bristol Channel, on an oolitic upland of the Cotswold Hills, which looks down upon the broad plain of Stroud, Gloucester, and Cheltenham on the west. Some of its springs rise close to the edge of the escarpment which faces the valley of the Severn, 900 feet below them. Formerly the whole of this upland region belonged to the basin of the Severn, but continued erosive action has encroached upon the eastern slope of the plateau, and for ages the water-parting has been travelling westward, the basin of the Thames gaining in extent at the expense of that of the Severn.* An examination of a geological map of England shows at a glance how extensively the liassic strata in the region which gives rise to the head-waters of the Thames have been reduced by denudation.

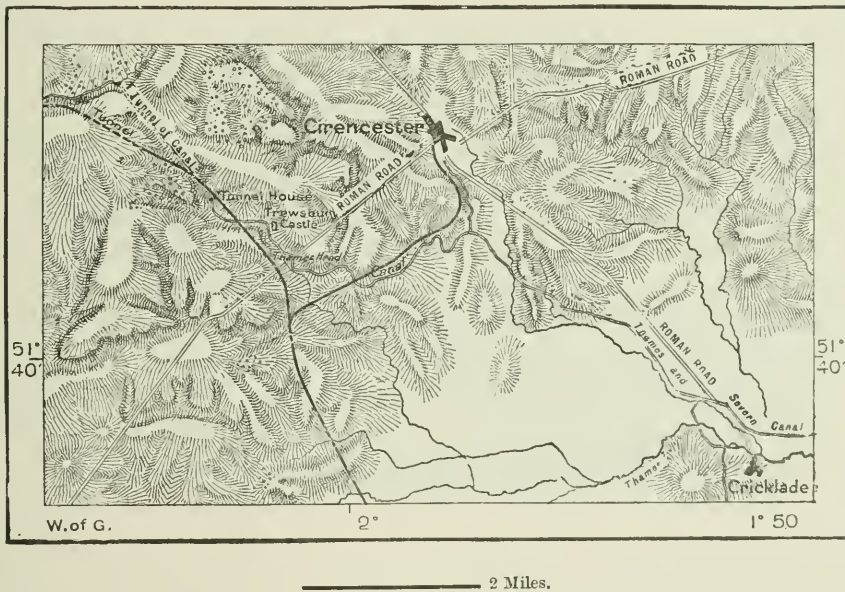
The principal source of the river, known as Thames Head, rises at an elevation of 376 feet above the sea, a little to the south-west of Cirencester. It gives birth to the Isis, which, having been augmented by the Churn, the Colne, and other streams, becomes navigable for barges at Lechlade, on the borders of Gloucestershire and Berkshire. Only after its junction with the Thame, in Oxfordshire, does the combined river obtain its proper name of Thames, which it retains till it joins the German Ocean. In its course it traverses various geological formations, which succeed each other with singular regularity. From the oolitic uplands near its head it passes through a region of chalk, succeeded by tertiary rocks and the alluvial deposits which surround its estuary. Speaking generally, the basin of the

* Ramsay, "Physical Geology and Geography of Great Britain."

Thames may be said to be made up of parallel strips varying in width, but all striking from the south-west to the north-east. A broad band of cretaceous rocks extends, however, to the south, having its root in the "plain" of Salisbury, and forming the range of the North Downs, which separates the tracts of the Weald from the valley of the Thames. The eastern extremity of the county of Kent, which may be likened to the prow of England, forms part of this extended band of chalk. These North Downs, together with the culminating points rising upon the uplands from which they extend eastward, form the highest elevations within the basin of the Thames. Their height, however, in no instance exceeds 1,000 feet.* The chalky uplands to the north of the river are even less elevated, and only the Chiltern Hills, which stretch north-eastward from the Thames, above Reading, can compare with them, their culminating point, Wendover Hill, attain-

Fig. 80.—CIRENCESTER AND THAMES HEAD.

Scale 1 : 175,000.



ing a height of 905 feet. Formerly these hills abounded in timber, especially beech, and afforded shelter to numerous highwaymen. To put the latter down, and to protect the inhabitants of the neighbouring parts from their depredations, a "steward" was appointed under the Crown. For several generations past the duties of this officer have ceased, but his office remains, in order that it may be conferred on any member of Parliament, not otherwise disqualified, who is desirous of resigning his seat. The applicant, by accepting office under the Crown, renders his seat in Parliament vacant, and a writ for a new election is ordered.

The basin of the Thames has singularly varied in extent in the course of geological ages, in accordance with the oscillations of the land and the displacements of the sea. Whilst England still constituted a portion of the neighbouring

* Milk Hill, 967 feet; Inkpen, 973 feet; Leith Hill, 967 feet.

continent, the Thames flowed eastward and formed part of the basin of the Rhine. At that time it was merely a tributary river, but its volume was nevertheless far more considerable than during a subsequent stage, when it flowed into a huge bay of the sea, which reached up to London, and when the site of the great city was occupied by an oyster bed.* At that period vast swamps extended to the eastward, almost shut off from the sea by a half-submerged littoral ridge, upon which, even during post-tertiary ages, the bodies of huge animals floated down by the river were stranded. The quantity of bones of rhinoceroses, mammoths, elephants, stags, bisons, and other animals, which geologists have discovered in the marshes of Ilford and elsewhere, is truly astonishing. At the present time the land once more gains upon the sea, but this is due, in a large measure, to the work of man. The sea-walls, perhaps commenced by the Romans, enclose an area of 33 square miles, depressed between 3 and 7 feet below the level of high water.†

At Teddington Lock, at an elevation of 21 feet above the level of the sea, the Thames ceases to be an independent river. The tide flows up to that village, and hence, perhaps, its name (Tide-end-ton‡), but the river does not present the aspect of an estuary until within a short distance of London, where muddy banks, alternately covered and uncovered by the tide, are first met with. Even within the limits of the metropolis the river frequently overflows its banks, and the low-lying quarters to the south of it have more than once been invaded by its floods. Yet in the basin of the Thames floods ought to be amongst the most exceptional occurrences.§ The rainfall is pretty regularly distributed throughout the year; there are no high mountain ranges bounding the basin; the hills within it are for the most part of gentle contours; and the rain runs down slowly from them into the river channels. As already remarked, the principal source, near Cirencester, rises at an elevation of only 376 feet, but virtually its surface is about 30 feet lower, owing to its water being pumped into the summit "pound" of the Thames and Severn Canal. But, besides this, more than one-half of the basin of the Thames is composed of permeable rocks, which allow the water to percolate into the bowels of the earth, instead of rapidly flowing down the hill-slopes. The contrast between permeable and impermeable rocks strikes even the superficial observer, permeable soil being planted with corn, whilst that which retains the water is laid out in meadows. In the permeable district between Nuneham and Maidenhead no tributary of any size enters the main river, and yet it grows almost visibly with every one of its bends, owing to the numerous perennial springs which rise on its banks. A régime such as this acts as a natural

* Hugh Miller, "Summer Ramble among the Hebrides."

† Redman, Institution of Civil Engineers, 1877.

‡ Huxley, "Physiography."

§ Volume of the Thames at Teddington Lock:—

Average discharge, per second	1,300 cubic feet.
Maximum " "	1,770 "
Minimum " "	700 "
Area of the basin above Teddington Lock	4,590 square miles.
Rainfall within the basin	26 inches.
Surface drainage	4 "

regulator upon the volume of the river, for whilst the rain which falls upon impermeable rocks is quickly carried off, that which percolates through permeable soil is stored up for months before it finds its way into the river. Curiously enough, the labour of man has been expended to interfere with the natural discharge of the river, and the Thames, which is by nature most inoffensive, has become a source of danger and annoyance to the people who dwell along its banks. The locks, which to the number of thirty-three, interfere with the natural discharge of the river between Oxford and Teddington, are for the most part under the control of millers, whose interests run counter to those of navigation and of the inhabitants generally. They have reduced as far as possible the number of locks required for raising the barges from one level to the other, and they take care to maintain the level of the river at its highest, so as to secure ample motive power, quite regardless of the fact that by doing so they expose the riverine regions to disastrous

Fig. 81.—OLD LONDON BRIDGE.



inundations. The channel of the river being thus for the most part bank-full, is incapable of receiving the surplus water resulting from exceptional rains, and floods are the natural consequence. But what matters this to the millers, who appear to be guided by the axiom that "one man's loss is another man's gain?"

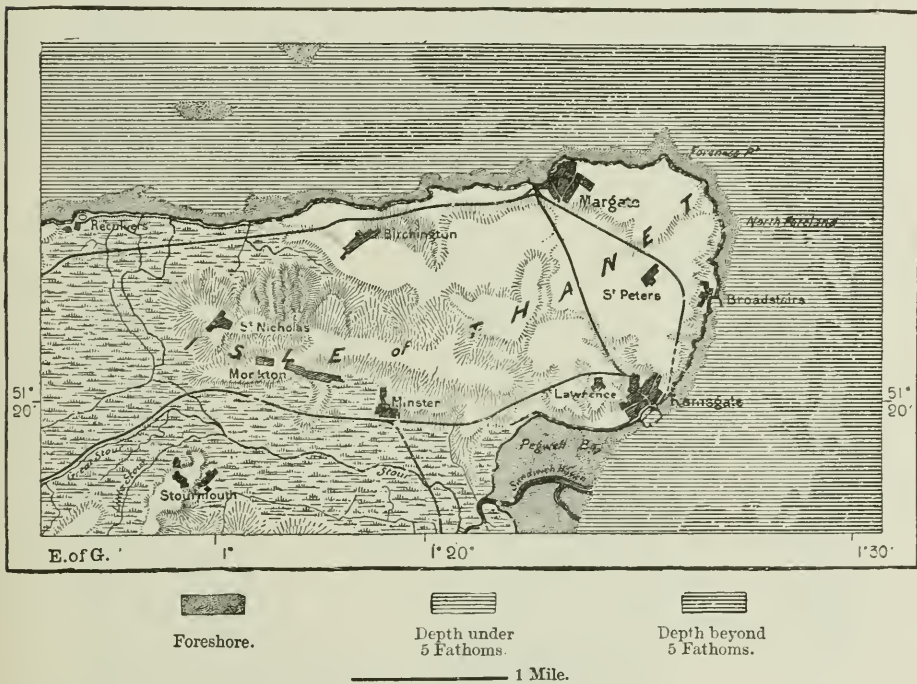
But whilst the normal régime of the Upper Thames is being interfered with by locks, the channel exposed to the action of the tide was, until recently, quite as much encumbered by old-fashioned bridges. Old London Bridge, owing to its contracted arches, proved a formidable impediment to the free passage of the tide. At low water, on account of the obstacle it presented to the returning tide, there was a fall here of about 5 feet. Since the reconstruction of this bridge a greatly increased body of tidal water flows up and down the river, and as it meets with no obstruction, it flows with a decidedly greater velocity. The effect of this is to scour and deepen the channel; shores formerly foul and muddy have become clean shingle and gravel; the time of high water is an hour in advance of what it was at

bounded by a line drawn from the North Foreland through the Gunfleet beacon to Harwich Naze.

The littoral region which bounds the estuary of the Thames to the north and south has undergone frequent changes during the historical epoch. The sea gains almost incessantly upon the coasts of Suffolk and Norfolk, advancing at a speed of 6 to 15 feet annually. Towns have been compelled to retreat inland, and the old church of Eccles-by-the-Sea is now buried beneath sand piled up by the waves.* Elsewhere changes of an opposite kind have taken place. Estuaries have become silted up, and ancient seaport towns reduced into agricultural villages. Beccles, which had a much-frequented port in the fourteenth century, now lies 8 miles inland, and the trade which formerly was its own is

Fig. 83.—THE ISLE OF THANET.

Scale 1 : 206,000.



carried on now by the modern town of Lowestoft.† Changes of even greater importance have taken place along the coast of Kent, where the geographical features of the country have undergone radical alterations since the time of the Romans. The ancient church of the Reculvers, which may be seen on a low cliff to the west of Margate, bears witness to the erosive action preying upon the coast, for the Roman city of *Regulbæ*, which subsequently became the capital of a Saxon kingdom, stood at a considerable distance from the sea. The waves have gnawed the coast, the Roman wall which surrounded the city has for the most part been destroyed, and in order to protect the church, which serves as a landmark to mariners, from a similar fate, the Admiralty has been obliged to construct a sea-

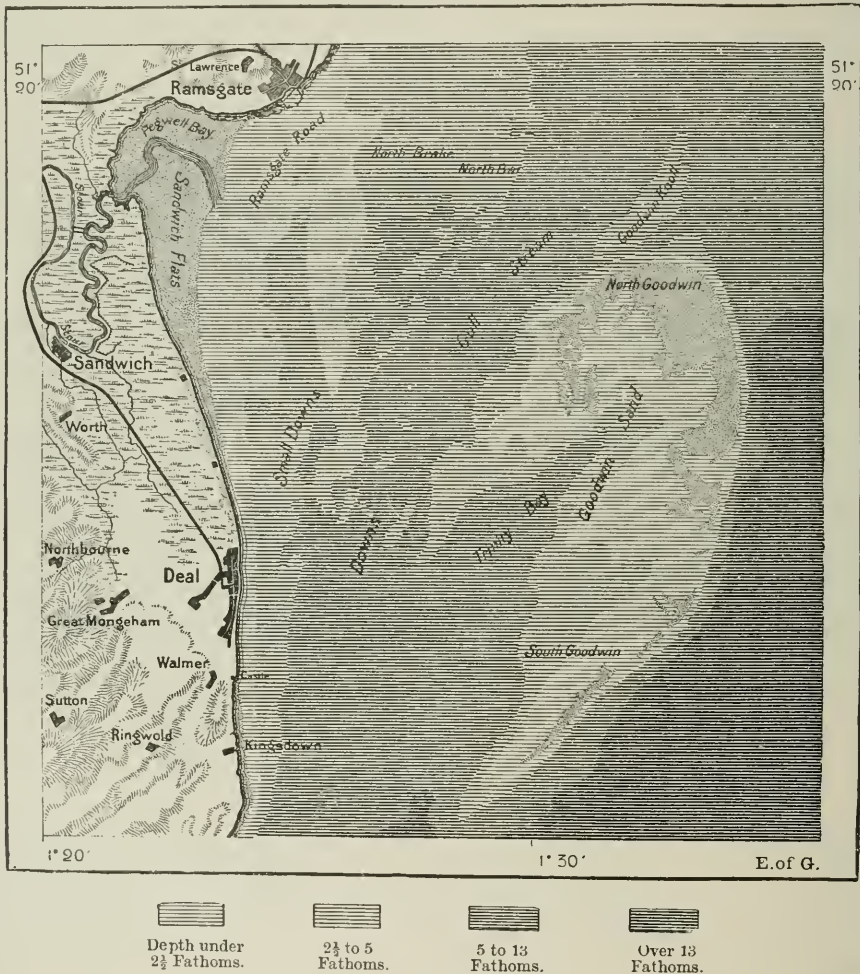
* A. Ramsay, "Physical Geology and Geography of Great Britain."

† Rogers; O. Peschel, "Neue Probleme der vergleichenden Erdkunde."

wall. But whilst the sea encroached at that spot upon the coast, the land elsewhere has gained in extent. The strait which anciently separated the Isle of Thanet from the mainland of Kent has been silted up, the old island converted into a peninsula, and the river Stour now traverses the site of the old Wantsome, or sea-passage, through which foreign ships sometimes passed on their way to London. This gain at the north-eastern corner of the county of Kent, however, is but small if compared with the loss sustained along the east shore towards the

Fig. 84.—GOODWIN SANDS.

Scale 1 : 175,000.



close of the eleventh century, in consequence of a terrible hurricane, which also ravaged the coasts of Flanders and Holland. That storm, we are told, caused the vast estates of Earl Godwin to be swallowed up by the sea, their site being marked now by a crescent-shaped bank of sand, which lies about 5 miles off Deal, and turns its convex side towards the open sea. Mariners dread these sands, for shipwrecks are frequent. The "great storm" of 1703, when four men-of-war, with 1,190 souls on board, were lost in a single night, and the

neighbouring coast was covered with the wreckage of merchantmen, will long live in the memory of British sailors. Two attempts have been made to build a lighthouse upon this dreaded bank, but the work of man was incapable of resisting the power of the waves, and mariners must rest content with light-ships and buoys, which mark its contour. The roadstead between the Goodwin Sands and Deal is known as the Downs. It affords shelter to vessels during storms, and as many as five hundred have been waiting here for favourable weather to continue their voyage down Channel or to the north.

The ten counties lying wholly or for the greater part in the basin of the Thames are almost exclusively agricultural. Neither coal nor iron, which might have given rise to a manufacturing industry similar to that of the north, is found. Yet London, which has gathered within its boundaries more than half the population of the whole basin, and a few other towns of less note, are indisputably seats of industry; and the metropolis, thanks to its noble river, its densely packed population, and its command of capital, will always be able to maintain its pre-eminence as “universi orbis terrarum emporium.” Fishing adds to the resources of the counties bordering upon the German Ocean.

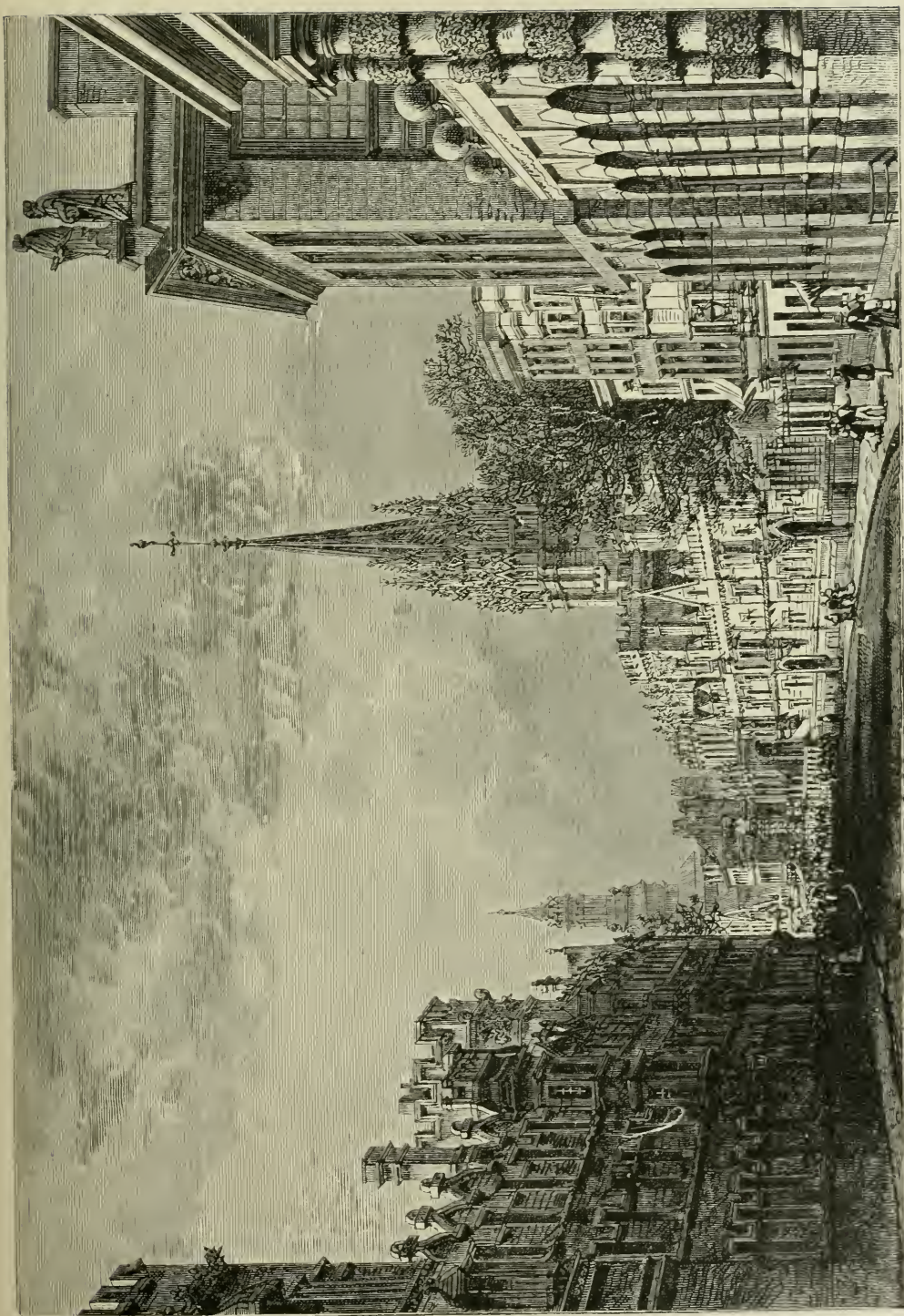
TOPOGRAPHY.

EASTERN Gloucestershire and North-eastern Wiltshire are within the basin of the Thames, but their principal towns having already been described (see pp. 117, 136), we at once pass to a consideration of Oxfordshire.

OXFORDSHIRE lies to the north of the Thames, between Gloucestershire and Buckinghamshire, and consists of level or slightly undulating land, for the most part under tillage. The northern portion of the county is occupied by the Edge Hills, a continuation of the oolitic Cotswolds, presenting a bold escarpment towards the vale of the Avon. These uplands give rise to the Windrush, Evenlode, and Cherwell, which flow to the Thames. At Oxford the latter river abruptly turns to the south, and passes through a gap at the foot of the Chiltern Hills, which occupy the south-eastern corner of the county. Agriculture and dairy husbandry are the principal sources of wealth, barley for malting and butter being amongst the most important products. The manufactures are unimportant; but if the coal underlying the oolite, and reached by a boring made at Burford, should one day be worked, Oxfordshire may be transformed from a purely agricultural region into a land of manufactures.

Oxford, in many of its buildings, still presents the features of a mediæval city. It almost looks as if Time had not touched it for four or five centuries. Its monuments of the past, however, have not become ruins, for they are maintained with religious care, and present the appearance of only having recently left the hands of the architect. Still the limestone of which most of them have been constructed shows marks of decay, and many a column originally decorated with elaborate carvings has become an unshapely mass of stone. This decay, however, has nowhere degenerated into ruin, and numerous finely carved façades, with ivy clinging to their

projections, may still be seen. Broad lawns surround the old towers and gabled buildings with pointed windows, fountains send forth jets of sparkling water in the centre of the courts, statues decorate the streets and open places. The city walls, dating back to the eleventh century, can still be traced through almost the whole of their course; but the remains of the castle are reduced to a solitary tower, the Norman buildings which occupy its site being of modern date. From the banks of the Cherwell or Thames, where the rowing clubs engage in their trials of strength, the domes, spires, and stately towers of colleges and churches, rising behind masses of dense foliage, form a picture of incomparable beauty. The panorama to be enjoyed from the roof of Radcliffe Library is unique of its kind, for we look down upon what appear to be the palaces, monasteries, and churches of a mediæval city. Each of the twenty-five colleges and halls which cluster in this seat of learning leads a life of its own, whether it be University College, whose foundation dates back to 1264, or Keble College, only opened in 1870. Each has its special history, and boasts of the possession of ancient charters, precious works of art, valued libraries, or other treasures. The buildings occupied by several of the colleges are remarkable as works of architecture, foremost in this respect being Christ Church, which boasts the noblest hall, and has attached to it the cathedral church of Oxford. Each college glories in the men of mark whose names appear upon its roll of members. Oxford, more than any other town of equal size, has shaped the common destinies of the nation, and many men, illustrious as statesmen or in the history of art and science, have been trained there. Yet the power of the ancient university has in most instances been exercised in resisting the march of progress. Not a stone can fall at Oxford but is religiously replaced by another of exactly the same shape. Similarly there exists not an ancient idea or a custom of the olden time which the learned dons, in the retirement of their time-blackened colleges, do not seek to perpetuate through their influence and erudition. Although Wickliffe was one of the professors at Oxford, the university offered a most powerful resistance to the spread of Protestantism in England, and the learned Cranmer, Ridley, and Latimer were burnt to death in front of one of the colleges, that of Balliol, in the reign of Queen Mary. At the time of the Revolution Oxford took the side of the Royalists, and it was within its walls that Charles I. established his head-quarters during the war. Since that time Oxford has taken a pride in being looked upon as the stronghold of Conservatism. Of late, however, its traditions have received a rude shock. Some of its professors and students are being carried along by a current of new ideas, and Oxford may now be said to send forth champions who ably represent the most extreme views of either side. Nor is there another town where, thanks to the labours of the past, arguments in favour of the most opposite views can so readily be commanded; for nowhere else, not even in London, are similar facilities for study concentrated within so small an area. Laboratories, libraries, and scientific collections are attached to every college, and, in addition to these, there are the ever-increasing collections of the university. The new Natural-History Museum—it was only built 1855-60—is rapidly growing into importance. The “Taylor Buildings”

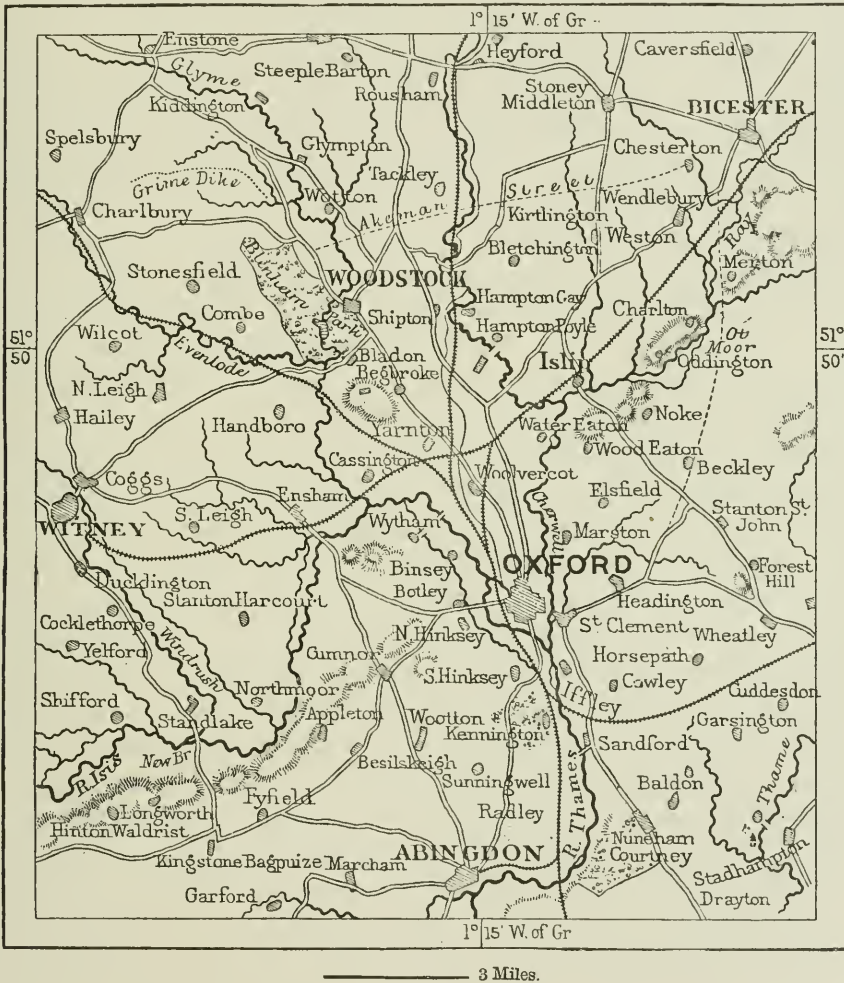


OXFORD—HIGH STREET.

contain the university library, whilst the adjoining "Galleries" afford accommodation to the famous Pomfret marbles and a collection of paintings and drawings, most precious amongst which are 162 original designs by Raphael and 79 by Michael Angelo. Radcliffe Library, named after its founder, the physician of William III., to whom the university is likewise indebted for its observatory, occupies a handsome rotunda, surmounted by a dome rising from an octagonal base.

Fig. 85.—THE ENVIRONS OF OXFORD.

Scale 1 : 250,000



The buildings known as the "Schools," which were once used for lectures, in which a suite of rooms is set apart for public examinations, are now mainly occupied by the famous Bodleian Library, thus named after its founder, Dr. Bodley, who died in 1612. This collection, one of the largest in the world, for it contains 400,000 printed volumes and 25,000 MSS., is more especially rich in oriental literature, and possesses the MSS. collected by Dr. Clarke on Mount Athos. It is entitled to a copy of every work printed in England; but, like other collections in

Oxford, it profits by the donations which accrue to it through wealthy graduates, who keep their *alma mater* in fond remembrance. Jointly the various libraries of Oxford contain more than a million volumes, or nearly as many as the British Museum; but it is matter for regret that these treasures should be available only to members of the university and foreigners whose studies compel them to do homage in this sanctuary of science. During vacations the libraries are almost completely deserted. It is at such a time that the fact of Oxford's native insignificance is most strikingly brought home to us. Without its two thousand undergraduates and the herd of hangers-on who minister to their wants, the town would resemble a desert, and grass would grow in its streets.*

The environs of Oxford abound in pretty villages and interesting localities. At *Cuddesdon*, 5 miles to the south-east, are the Bishop's Palace and an ecclesiastical Training College. *Nuneham Courtney*, the seat of the Harcourts, occupies a wooded height overlooking the river 5 miles to the south of Oxford, its park of 1,200 acres abounding in fine trees. *Woodstock*, 8 miles to the north-north-west, is an early residence of the Kings of England, where Henry II. made the bower for his fair Rosamond. Not a trace remains of the old palace. Blenheim Park, which was presented to the Duke of Marlborough in recognition of his famous victory of 1704, adjoins the town. Its mansion contains a valuable collection of paintings, whilst the beautifully diversified park abounds in old oaks and cedars, and is stocked with deer and kangaroos. Woodstock is known for its gloves; whilst *Witney*, an ancient town 6 miles to the south-west of it, on the Windrush, enjoys some reputation for its blankets. *Burford*, higher up on the Windrush, is an old market town, with an interesting church; whilst *Bampton-in-the-Bush*, in the south-west, has the remains of a castle. *Spelsbury*, on the Upper Evenlode, was the birthplace of Sir John Franklin, the arctic navigator, in whose honour a monument has been placed in front of the town-hall. *Chipping Norton* is a quiet market town, near the western border of the county. The neighbouring village of *Churchill* was the birthplace of William Smith, the father of modern geology, who thus passed his childhood at the foot of those oolitic hills which are so rich in the fossils which subsequently he studied to such great advantage.

Ascending the Cherwell for 25 miles above Oxford, we reach *Banbury*, a clean old town, with quaint houses and the remains of a Roman amphitheatre known as the "Bear Ring." Banbury is famed in the world of gastronomy for its cakes, cream cheese, and ale. The battle of Edgehill, in which Charles I. was defeated by the Parliamentary forces under the Earl of Essex, was fought 7 miles to the north of it. *Bicester* and *Thame*, both towards the Bucks frontier—the one to the east of the Cherwell, the other on the navigable Thame—are prosperous market towns. Bicester, moreover, is noted for its ale. Near it, on Akeman Street, are the ruins of the Roman city of *Ælia Castra*, or Alcester.

Descending the river below Oxford, we reach *Dorchester*, at the mouth of the

* There are 53 University professors and teachers, 385 Fellows of Colleges, and nearly 2,000 undergraduates. The University has an income from external sources of £15,000, the Colleges and Halls of £307,000. The 439 benefices in the gift of the latter have an annual value of £187,660. Out of this income £132,000 is paid to heads and fellows of colleges, £26,000 to scholars and exhibitioners.

Thame, which was the seat of a bishopric from the seventh to the eleventh century, but is now a place of no importance. Keeping the Chiltern Hills on our left, we pass from the upper into the lower basin of the Thames, and reach *Henley*, delightfully situated on a gentle declivity, amid hills covered with beech woods. A handsome stone bridge here spans the river. Henley is the head-quarters of aquatic sports on the Upper Thames.

BERKSHIRE lies to the south of the Thames, which separates it from Oxfordshire and Buckinghamshire. Its surface is beautifully diversified. The rivers Ock and Kennet intersect the county from west to east. The vale of the Ock, known also as that of the White Horse, from a gigantic figure of a horse rudely carved on an overhanging escarpment of chalk, is the most fruitful district of the county. A range of chalk downs separates this valley from that of the "Kennet swift, for silver eels renowned." Here the soil is less productive, being for the most part gravelly, and a good deal of peat is found. The eastern part of the county, beyond the river Loddon, contains Windsor Forest and Bagshot Heath, and is characterized by its woods and forests. Berks enjoys a considerable reputation as a dairying and grazing county, the former being most successfully practised in the western part of the vale of the White Horse. Most of the cheese made is of the description called double Gloucester.

Faringdon, an old residence of the Saxon kings, occupies a sheltered position near the head of the river Ock, the hill above it commanding a fine view of the valley of the Thames and of the Berkshire Downs, White Horse Hill, with its gigantic steed, forming a conspicuous object. *Wantage*, on a branch of the Ock, and at the foot of the downs, is celebrated as the birthplace of Alfred the Great. Ashdown, to the south, where the Saxon king defeated the Danes, is covered with numerous earthworks. Though situated within a purely agricultural district, Wantage enjoys some reputation on account of its grammar school. It also boasts a fine church of the fourteenth century, and feels some pride, too, in having given birth to Bishop Butler, the author of the "Analogy." *Abingdon*, at the union of the Ock with the Thames, here joined by the Berks and Wilts Canal, which brings the town into communication with Bath and Bristol, carries on a brisk trade in corn and malt. Of the old abbey, founded in the seventh century, there now exist only insignificant remains. The churches and public buildings are deserving of attention. The pretty village of *Sunningwell* lies within a couple of miles of the town. From the tower of its old church Roger Bacon is said to have made his astronomical observations. Culham College, for the training of schoolmasters, lies on the other side of the Thames, in Oxfordshire.

Lambourn and *Ilsey* are the principal market-towns in the Berkshire Downs, which at the ancient municipal borough of *Wallingford* approach close to the Thames.

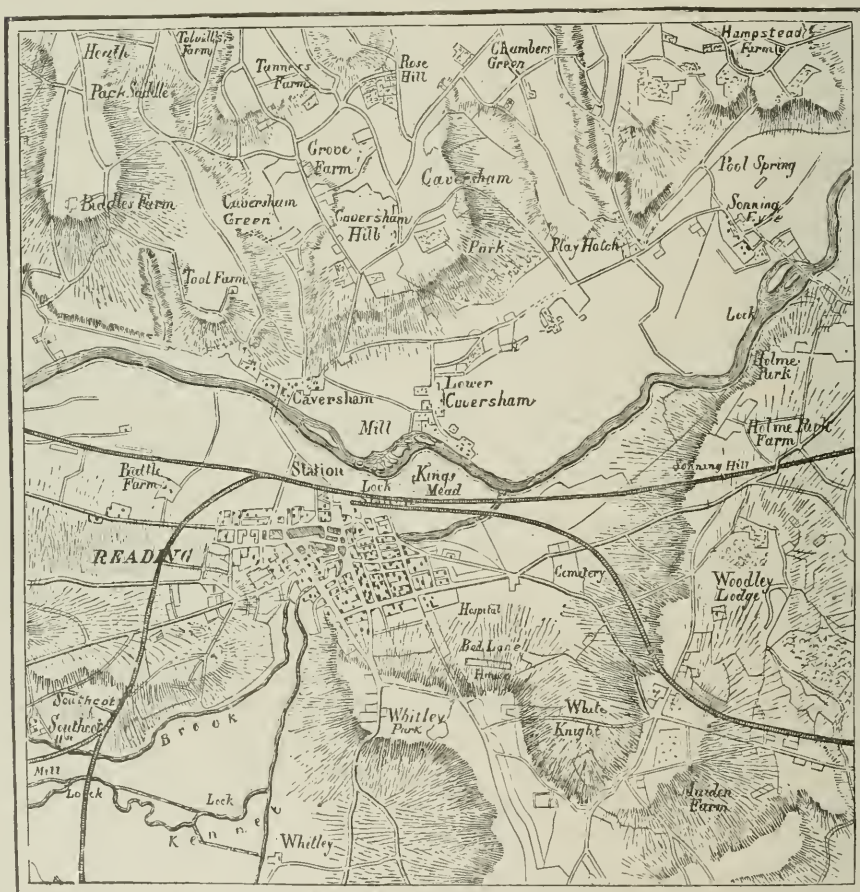
The Kennet, on first entering the county from Wiltshire, waters the old town of *Hungerford*, a favourite resort of the angler, the river being famous for its trout, and the fisheries yielding a handsome revenue to the corporation. The Kennet and Avon Canal passes the town. It affords the most direct line of

communication by water between London and Bristol, and many of the bulky articles of commerce pass along it. *Newbury*, lower down the Kennet, is built on a peat bed. Battles took place near it, in 1643 and 1644, during the Civil War. In the neighbourhood are *Donnington Castle* and *Shaw House*—the latter, notwithstanding the injury it suffered during the war, the most stately Elizabethan mansion in the county.

Reading, a flourishing commercial town, stands on the river Kennet, 1 mile

Fig. 86.—READING.

From the Ordnance Survey. Scale 1 : 63,366.



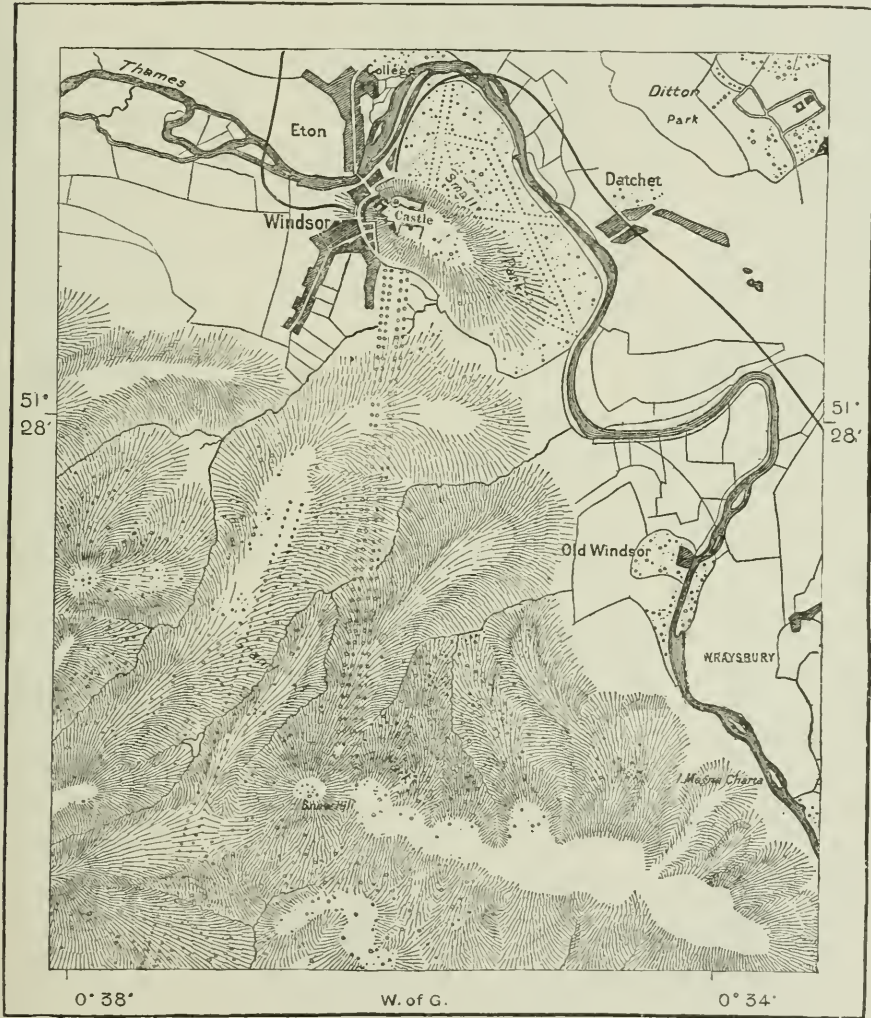
above its junction with the Thames. It is a place of considerable historical fame, battles having been fought in its neighbourhood, and Parliaments held within its walls. But the only object likely to interest the antiquary is the remains of a Benedictine abbey founded in 1121, and converted by Henry VIII. into a royal palace. At the present day Reading is known chiefly on account of its biscuit factory, which dispatches train-loads of them daily to every quarter of the globe. There does not probably exist an article of food more widely dispersed

than Reading biscuits, for they are eaten everywhere, from Alaska to New Zealand, and from Greenland to the Cape of Good Hope. Reading also exports seeds for flowers, and has an iron foundry.

Below the "Town of Biscuits" the Loddon, born in the North Downs, not far from Basingstoke, mingles its water with that of the Thames. The country

Fig. 87.—WINDSOR.

Scale 1 : 55,000.



beyond that river is to a great extent covered with woods. *Wokingham*, formerly known as Oakingham, lies on the verge of the ancient royal forest, and up to 1821 was noted for bull-baiting. Near it are Wellington College, for the education of officers' sons, and the Royal Military College of Sandhurst, both on the road to the camp of Aldershot (see p. 141).

The Thames, between Reading and Windsor, passes through some of the most lovely scenery to be met with in England. Princely mansions are numerous in this favoured region, most prominent amongst them being Cliefden, the seat of the Duke of Westminster, opposite the charming village of Cookham, on the Buckinghamshire bank of the river. *Maidenhead*, the centre of this attractive district, is more especially noted for the beauty of the surrounding scenery. Near it stands the church of *Bray*, known through its versatile vicar, who, true to his principle, "to live and die the Vicar of Bray," never hesitated to change his religion.

After winding through the verdant plain below Maidenhead, the Thames strikes the foot of a scarped hill crowned by Windsor Castle, the only sumptuous palace of the sovereign of England, and one of the most extensive and picturesque piles of buildings in the world. The all-surmounting Round Tower, or Keep; the pinnacles of the beautiful St. George's Chapel showing above the walls; the crenelated towers of unequal height, which break the monotony of the enceinte; luxuriant trees hiding the foot of the walls and clothing the slopes of the hill down to the banks of the river; and last, not least, the town nestling beneath the innumerable gables and towers of the castle—all these make up a most charming picture. This is indeed the residence, not of one sovereign, but of a whole line of kings, who from century to century employed their wealth in the embellishment of the home of their ancestors. William the Conqueror was the first to raise a fortress on this spot. Edward III., who here founded the Order of the Garter in 1349, almost entirely reconstructed it, and since his time nearly every sovereign has added to this pile of buildings. The castle consists of two great divisions, the Lower and the Upper Ward, separated by the Round Tower, formerly a place of confinement for prisoners of state. Several portions of the palace are exquisite specimens of architecture, St. George's Chapel being most notable in this respect. It is one of the finest existing examples of the perpendicular style, most richly decorated, and not unworthy of being the burial-place of seven Kings of England. The entire castle forms a vast museum, abounding in pictures, statues, tapestry, and works of art of every kind, presented to or purchased by its royal occupants. In the state apartments we find ourselves surrounded by precious works of art, tastefully displayed to the best advantage. One room contains an unrivalled collection of twenty-two portraits by Vandyck; another is devoted to works by Rubens. The Waterloo Chamber is decorated with portraits, mostly painted by Sir Thomas Lawrence, of the chief persons who bore a prominent part in the Congress of Vienna. The collection of drawings by ancient masters is perhaps the richest in the world, and the library contains many works of inestimable value. It would be difficult to discover a more cheerful place for study, for the wide bow windows, suspended as it were above the terrace walks, look out upon one of the most charming landscapes of England, with the Thames pursuing its devious course through verdant meadows.

Looking across the river, we perceive the clock tower, chapel, and other buildings of Eton College. The village of *Eton* is in Buckinghamshire, joined to



WINDSOR CASTLE.

Windsor by an iron bridge, and virtually a suburb of it. At this school the flower of the English nobility and gentry are educated, and its muster-roll of eminent scholars is worthy of the position it has attained. The college was founded in 1440 by Henry VI. for the support of twenty-five poor grammar scholars, and the like number of poor men, who were to pray for the King. In the course of time, however, it has grown into the most aristocratic school of England.*

The delights of the environs of Windsor have inspired the muse of England's poets since the days of Shakspeare. Historical associations abound. It was not far from Windsor, at Runnymede, that King John was forced, in 1215, to sign the Charter, which for ever limited the royal prerogatives. The large park which adjoins the castle abounds in delightful walks and drives through forest scenery, and is stocked with herds of deer. The "Long Walk," an avenue of noble elms, 3 miles in length, traverses it, and terminates on Snow Hill, which is surmounted by Westmacott's equestrian statue of George III. Three miles farther is a much-admired artificial lake, known as Virginia Water. The famous race-course of *Ascot* adjoins this park on the south. Frogmore House and the magnificently decorated mausoleum of the Prince Consort are in the Home Park, to the east of the castle. Manor Lodge, in the Great Park, has recently been converted into a manufactory of tapestry, directed by French workmen.

BUCKINGHAMSHIRE, which derives its name from the beeches abounding in its woods, forms a narrow slip of land, extending from the Thames northward into the basin of the Ouse. The chalky downs of the Chiltern range cross the southern part of the county, and separate the beautifully diversified tract of country bordering upon the Thames from the fruitful vale of Aylesbury. This vale, noted for its dairy farms, is drained by the river Thame, and bounded on the north by a range of sandy hills, beyond which lies that part of the county which is drained by the Ouse and its tributaries. Agriculture, dairy-farming, and the raising of poultry are the principal occupations of the people, in addition to which the manufacture of pillow lace, paper, straw plait, boots, and wooden chairs is carried on.

Great Marlow, the principal town on the Thames, is here spanned by a suspension bridge. A few miles to the north of it, in a delightful valley of the Chiltern Hills, surrounded by villas and shrubberies, lies *High* or *Chipping Wycombe*, one of the leading manufacturing towns of the county, producing paper, wooden (Windsor) chairs, pillow lace, parchment, and plaited straw. It has the finest and largest church in Buckinghamshire. Two miles to the north of it is *Hughenden*, the residence of the Earl of Beaconsfield, whose title is derived from the neighbouring market town of *Beaconsfield*, a place of some trade: Burke and Waller the poet are buried there.

The Thames between Great Marlow and Windsor is studded with villas and mansions, most prominent amongst them being princely Cliefden, already mentioned, and Dropmore, whose delightful grounds abound in exotic pine-trees,

* At present there are 70 foundation or King's Scholars (Collegers) admitted after a competitive examination, who are lodged and boarded in the college, and 880 "Oppidans."

unequalled in size. *Slough*, a growing town close to Eton, has brick-yards and nursery grounds, but is more widely known as the place where Sir William Herschel resided for forty years. Here he constructed his forty-foot telescope, and here he died in 1822. *Stoke Poges*, a pretty village, is close by. It is the burial-place of Gray, the poet, and the scene of his "Elegy." In a neighbouring park a colossal monument has been raised to Sir Edwin Coke, Lord Chief Justice of England. *Amersham*, a small municipal borough in the valley of the Misbourne, amidst wooded hills, manufactures wooden chairs and straw plait. Near it are *Chesham*, in the fertile valley of the Chess, a famous trout stream, with its paper-mills, and the village of *Chalfont St. Giles*, where stands the house in which Milton wrote "Paradise Regained."

Crossing the Chiltern Hills, we reach *Aylesbury*, on an eminence looking down upon its fertile vale, the county town, where the assizes and quarter sessions are held. It carries on a large business in preserved milk, butter, and straw plait, and sends ducklings and turkeys to London in enormous numbers. *Wendover* and *Prince's Risborough* lie at the northern foot of the Chiltern Hills. The first named manufactures pillow lace, straw plait, and coaches; the latter is a flourishing market town. Hampden House, the home of John Hampden the patriot, lies near it. *Brill*, on the border of Oxfordshire, had formerly a royal palace, and King Henry II. and Henry III. kept their courts there. A mineral spring rises near it.

The northern portion of the county is traversed by the Ouse, and nearly all its towns are seated upon that river. Chief amongst these is *Buckingham*, the former county town. It is an old place, but with few remains of antiquity, having suffered greatly from a fire in 1724. In its neighbourhood is Stowe, the princely seat of the Duke of Buckingham. The Ouse, in its onward course, flows past *Stony-Stratford*, *Wolverton*, *Newport Pagnel*, and *Olney*. Pillow lace is made in all these places. At *Wolverton* there are extensive railway-engine shops; *Newport Pagnel* has breweries and paper-mills; and at *Olney* the poet Cowper spent most of his days. *Fenny-Stratford* is the principal place in the valley of the Ousel, which joins the Ouse at *Newport Pagnel*. It occupies the site of *Magiovinium*, and is traversed by Watling Street. *Winslow* is the principal town on the road from Buckingham to Aylesbury.

HERTFORDSHIRE lies almost wholly within the area occupied by the chalky upland extending eastward from the Chiltern Hills. In the north-west this range forms a steep escarpment towards the plain of Bedford, whilst in the opposite direction it slopes gently down to the low counties of Middlesex and Essex. The principal rivers are the Colne and the Lea, both flowing into the Thames. A small portion of the county, along its north-western border, is drained by the Ivel, which is tributary to the Ouse. Agriculture is the leading occupation.

St. Albans, the principal town in the basin of the Colne, stands on rising ground on the left bank of the Ver, or Mure, which is the main upper branch of that river. For its historical associations it is the most interesting town in the vicinity of London. Of the Roman town of *Verulamium*, or Verulam, from which

Lord Bacon derived his title, there remain now only insignificant vestiges, though at one time it was the most populous Roman town in the south of England. Its chief interest now centres in the church of an abbey founded in 793 by Offa, King of the Mercians, in expiation of the share he took in the murder of Ethelbert. The abbey was dedicated to St. Alban, the protomartyr of England, who was executed here in 303 for having sheltered a Christian priest. The abbey church, recently restored, is the largest and one of the grandest edifices of the kind in England, and its oldest portions date back to the eleventh century. In 1875 St. Albans became the seat of a bishopric. *Gorhambury*, the seat of the Earl of Verulam, which was purchased in 1550 by the father of the great Chancellor, stands near the town, in the midst of a fine park.

Watford, on the Colne, consists of a long street, and carries on the manufacture of paper. Near it is *Cassiobury*, the seat of the Earl of Essex, with a valuable library, an interesting collection of portraits, and one of the finest parks in England. Ascending the valley of the Gade, along which the Grand Junction Canal takes its course, we reach the market towns of *Hemel-Hempstead*, *Berkhamsted*, and *Tring*, the latter at an elevation of 420 feet above the level of the sea. Malting and the manufacture of straw plait and of chairs are carried on at these places. Berkhamsted was the birthplace of Cowper, the poet. *Rickmansworth*, near the junction of the Chess with the Colne, has important paper-mills. Straw-plaiting and horsehair weaving are among the domestic occupations, and water-cress is largely grown for the London market.

Hatfield is the first town washed by the river Lea in its course through the county. It is a quiet, old-fashioned place, with a church of Norman foundation, overshadowed by the magnificent Jacobean mansion of the Marquis of Salisbury. The surrounding park abounds in noble trees, and a carefully kept vineyard is amongst its curiosities. *Hertford*, the county town, on the Lea, carries on a brisk trade in corn and malt. It has the remains of an old castle and a branch school of Christ's Hospital. Near it is *Panshanger*, the seat of Earl Cowper, with a valuable collection of paintings, more especially rich in examples of the Florentine school. *Ware*, also on the Lea, is the largest malting town in England, and malt-houses form its most conspicuous feature. In its southward course the Lea flows past Hoddesdon, Broxbourne, Cheshunt, and Waltham Cross, beyond which latter it enters the county of Middlesex. Broxbourne and *Rye House*, near Hoddesdon, are the best fishing stations on the river. Rye House is a favourite goal of London excursionists. It was the scene of the plot of 1683 for setting aside the succession of the Duke of York. Cheshunt is a straggling village, with extensive nurseries, and here the New River Company has a reservoir which stores 75,000,000 gallons of water.

Bishop Stortford, on the Stort, an affluent of the Lea, and close to the eastern border of the county, has malting-houses, breweries, and tan-yards. *Chipping* or *High Barnet*, in a commanding position to the west of the Lea, is noteworthy on account of a battle fought there in 1471, which cost Warwick the King-maker his life. An obelisk marks the site of this memorable event.

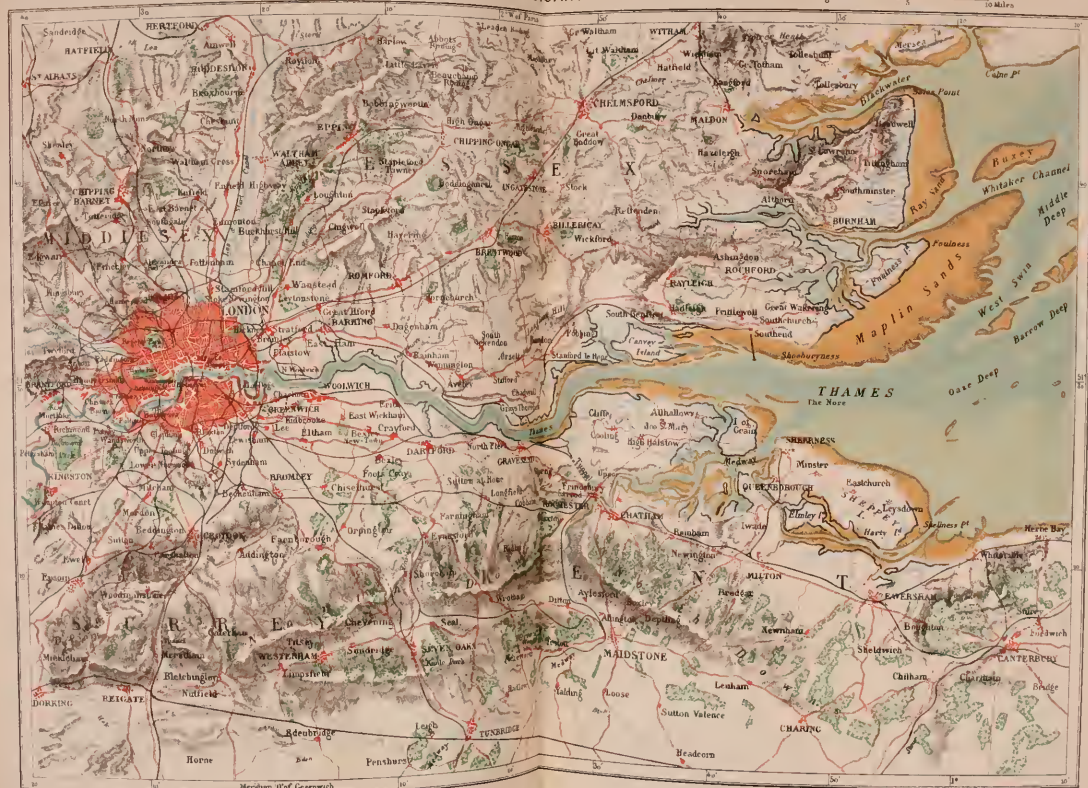
Hitchin and *Baldock* are the only towns in that part of the county which slopes down to the Ouse. The former is important as a corn market, and engages in the manufacture of straw plait; the latter boasts a church founded by the Templars in the thirteenth century.

MIDDLESEX takes its name from those Saxons who settled in this "middle" district. Though one of the smallest counties in England, it exceeds in population all others, for within its limits lies the chief part of the metropolis. By the side of London all other towns of the county dwindle into insignificance, nine-tenths of its population being embraced within the limits of the metropolis. The Thames divides Middlesex from Surrey, the Colne separates it from Buckinghamshire, the Lea forms its eastern boundary towards Essex, whilst the Brent intersects its centre. A range of chalk downs runs along the northern border, but the greater part of the surface consists of gravel, loam, or clay, and is diversified by hills and gentle undulations, which form a screen to the north of London, attaining its greatest elevation (440 feet) in Hampstead Heath. By far the largest portion of the county is in grass, the meadows along the Lea being particularly rich. Along the Thames much land is occupied by market gardens and nurseries.

Staines, on the left bank of the Thames, at its confluence with the Colne, marks the extreme extent of the jurisdiction of the conservators of the Thames, the boundary-stone bearing the date of 1280. This stone stands $36\frac{1}{2}$ miles above London Bridge. Descending past the villages of *Laleham*, *Chertsey*, *Shepperton*, *Walton*, and *Sunbury*, we enter a portion of its valley famed for its sylvan scenery. Below the village of *Hampton*, where *Garrick* had his country seat till his death in 1779, and which is the head-quarters of the Thames Angling Preservation Society, the gardens of *Hampton Court* extend close to the river bank. This palace, built by Cardinal *Wolsey*, who was compelled to surrender it to his master, *Henry VIII.*, is at present appropriated as a place of residence for court pensioners. A considerable portion of the palace is, however, set apart as a picture gallery and museum. Besides a good many paintings of inferior value, there are displayed here some undoubted masterpieces. Most prominent amongst these are the portraits by *Velasquez*, *Holbein*, *Titian*, *Vandyck*, *Gainsborough*, and *Lawrence*. The fine gardens are laid out in the manner of those of *Versailles*, but cannot compare with them in the magnificence of their perspectives. *Bushey Park*, with its unrivalled triple avenue of limes and horse-chestnuts, over a mile long, lies to the north of *Hampton Court*. Passing through this park, we arrive at *Teddington*, at the head of the tide, and virtually one of the suburbs of the great city, though not embraced within its boundaries. Thence onward country seats, in the midst of grounds famous for the beauty of their trees, become numerous. *Twickenham*, opposite *Eel Pie Island*, a famous resort of Thames anglers and picnic parties, is especially favoured in this respect. *Strawberry Hill*, the castellated mansion built by *Horace Walpole* in 1747, lies above this delightful village; *Orleans House*, from 1852—71 the residence of the *Duc d'Aumale*, but at present the home of an aristocratic club, below it. Near the latter stood *Pope's* famous villa. Passing *Isleworth*, near which stands *Sion House*, the residence of the *Duke of Northumber-*

Scale, 1:370,000

LONDON AND THE ESTUARY OF THE THAMES



Messrs. W. & A. George

land, on the site of an ancient monastery, we reach *Brentford*, at the mouth of the Brent, an important river port, with saw-mills, malt-houses, breweries, chemical works, and soap factories. Kew, with its famous botanical gardens, lies on the Surrey side of the river. *Chiswick* is noted for the nursery gardens of the Royal Horticultural Society, the palladian villa of the Duke of Devonshire, in which Charles James Fox died in 1806, and George Canning in 1827, and the tomb of William Hogarth, in the parish church. The house in which Hogarth spent his summers for many years is now let in tenements. *Fulham*, with its ancient church and an episcopal palace, the summer residence of the Bishop of London, lies within the precincts of the metropolis.

A chaplet of ever-increasing suburbs, extending from the Thames to the Lea, encircles London towards the west and north. They include *Ealing*; *Acton*; *Hampstead*, with its breezy heath; *Highgate*, affording the best view of the metropolis; *Hornsey*, which still retains some of its primitive features, and near which, on Muswell Hill, has been raised the gigantic structure of the Alexandra Palace; *Tottenham*; and *Edmonton*, the latter in the flat and clayey country bordering upon the Lea. At *Colney Hatch*, to the north of Hornsey, is one of the lunatic asylums of the county of Middlesex, and still farther north, on the banks of the New River, formed by Sir Hugh Myddelton to supply London with water, and fed by springs and chalk wells, there rises the straggling town of *Enfield*, interesting on account of its Royal Small Arms Factory.

There still remain to be mentioned a few towns in the western portion of the county. Of these *Harrow-on-the-Hill* is the most noteworthy. It is famous for its church, rising on the summit of an isolated hill, commanding a most extensive prospect, and its school, founded in 1571. At *Hounslow*, in the neighbourhood of Brentford and the Thames, there are cavalry barracks and powder-mills. The adjoining heath was formerly a favourite resort of highwaymen. *Hanwell*, on the Brent, is known for its county lunatic asylum, which affords accommodation to 1,750 patients.

Uxbridge, an ancient borough, on the Colne, has important cattle fairs. In 1645 the commissioners of Charles I. and the Parliament met there to negotiate a treaty for peace.

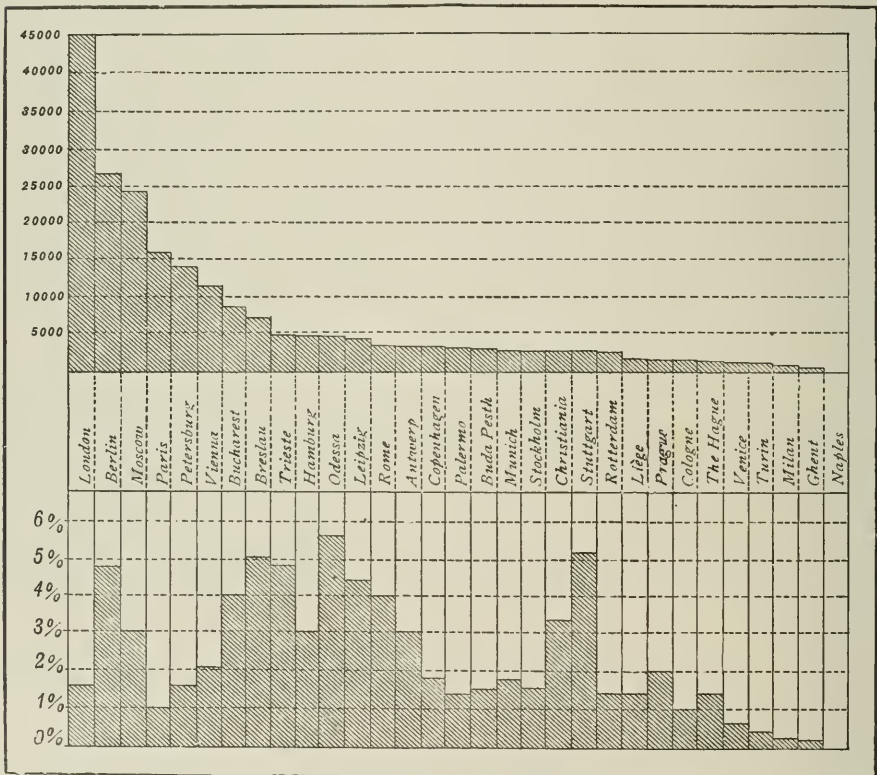
LONDON, the capital of England and metropolis of the British Empire, is the most populous city in the world. It is probable that no other city ever existed which could compare with it in the number of inhabitants. Neither Babylon nor Memphis, nor any of the great cities of China, ever contained an equal number within their walls; and if Rome and Byzantium, the two metropolitan cities of the ancient world, could have been united into one when they were at the height of their prosperity, their population would nevertheless have been but small, compared with the multitudes who have established themselves in the capital of England.*

* The most populous cities of the world, next to London, are—New York, with Brooklyn, &c., 1,980,000 inhabitants; Paris, 1,851,792 inhabitants; Berlin, 1,085,000 inhabitants; Vienna, 1,001,999 inhabitants; Canton, Siang-tau, Singanfu, and Chang-chau-fu in China, with 1,000,000 inhabitants each; Tientsin, 930,000 inhabitants; Calcutta (with Howrah), 992,000 inhabitants; and Philadelphia, 850,000 inhabitants.

London has often been likened to a province covered with houses. If we but enter this labyrinth of streets, we feel as if steam-power alone were able to extricate us. Even the hardest pedestrian yields to fatigue when traversing this interminable city. Street follows street, and the chance of obtaining a glimpse of the horizon appears to be a remote one. Houses without end, factories, railway stations, villas, gardens, and blind brick walls succeed each other in this huge hive of humanity. Even in the midst of the fields or in the outlying parks we feel that London still surrounds us, for on all sides the houses line the great

Fig. 88.—ANNUAL INCREASE OF POPULATION IN THIRTY-ONE CITIES OF EUROPE.

According to Dunant.



highways which join the metropolis to its more remote suburbs. Starting from the western extremity of the metropolis, we can walk successively through Hammersmith, Chiswick, Brentford, Isleworth, and Twickenham without ever leaving the houses behind us. A road, parallel to the former, connects Shepherd's Bush with Acton and Ealing. The northern suburbs, Hampstead, Highgate, Hornsey, Tottenham, and Edmonton, advance far into the open country like the arms of a gigantic polype. Similarly, when travelling south or south-westward, we reach Dulwich after we have passed through Brixton; then follow Sydenham, Norwood, and Croydon, and though we extend our walk for a distance of 12 miles,

as far as Epsom, one group of houses succeeds the other, and only at intervals do we catch a glimpse of what can truly be described as "country." Thousands are born in London, live and die there, whose horizon has ever been bounded by bricks and mortar. The only forests they have seen are the plantations in the public squares, and the sky above them has ever been tarnished by the smoke ascending from innumerable chimneys.

It is by no means easy to ascertain the real extent of London, and to settle upon a boundary which may fairly claim to embrace the whole of it. Officially there are no less than seventeen distinct Londons, each differing from the other in area and delimitation. Every public department has traced boundaries and subdivided the area included within them to suit its own convenience, and the population of the metropolis differs to the extent of several hundred thousand souls, according to whether we accept one or the other of these divisions, the most extensive of all being the London of the Police authorities, which includes all Middlesex, together with Kent and Surrey, within a circuit of 12 miles.*

The concentration of so great a multitude of human beings is explained by the evident advantages of London's geographical position. The site which it occupies has made it a great agricultural market, a place of transit for passengers and merchandise, a fluvial and maritime port, and a city of commerce centrally situated with reference to all parts of the world. It enjoys every possible advantage except that of a serene sky.

London is, above all, the natural outlet of the rich valley of the Thames, the most fertile of England, and that which is most accessible throughout the year. The deep yet gentle river which drains that basin has from time immemorial carried on its back the produce intended for the maritime emporium established at the head of its estuary. No other town along the river could have taken the place of London in this respect. Near it the last hills die away on either side, and communication between the two banks is still easy. Lower down the Thames winds between marshy banks, frequently flooded, and finally expands into a wide gulf. Crossing the latter was sometimes attended with danger, and frequently the dwellers on the Lower Thames, desirous of crossing from shore to shore, preferred to journey up to London in order that they might effect their purpose with ease and safety. Its site presented peculiar facilities for the establishment of ferries and the construction of bridges, in addition to which it afforded considerable security against foreign aggression. Like Paris, it is protected by the winding reaches of its river, and this is a capital advantage in the

* Area and population of London within the under-mentioned limits:—

	Area. Sq. Miles.	Inhabitants.	
		1861.	1871.
Parliamentary boroughs	60	2,610,253	3,024,066
Registrar-General's District	118	2,803,989	3,254,260
District of the Metropolitan Board of Works .	122	2,808,862	3,266,987
Postal Districts	452	2,967,956	3,536,129
School Board District	—	—	3,265,005
Metropolitan and City Police Districts . .	687	3,222,720	3,883,092

In 1880 London within the Registrar-General's limits had a population of 3,680,000 souls.

case of a town standing at the head of a wide estuary, open to the fleets of an enemy. It proved to be so, at all events, when the Dutch under De Ruyter were forced to retire baffled, after having produced a great panic, but done little harm.

Even looked at merely with reference to the other parts of the island, London enjoys a natural pre-eminence, which has become more conspicuous from century to century in proportion as the means of inland communication have expanded. The position of London relatively to the sea-coast and the continent of Europe substantially enhances the sources of its prosperity. The configuration of the estuary of the Thames is most happily adapted to the purposes of commerce. Wider than the estuary of the Humber; deeper, more secure, and less encumbered with sand-banks than the bay of the Wash, the huge cavity filled by the maritime Thames is admirably fitted as a harbour of refuge for the vessels which crowd the neighbouring seas. Moreover, this outer roadstead of London lies near the south-eastern corner of England—that is to say, close to the strait which joins the North Sea to the English Channel—and London in consequence has become the great mart of the two opposing streams of commerce which pass through this strait. Just as the two tidal currents, the one coming straight from the Atlantic, the other wheeling round the northern extremity of the British Islands, meet in this locality and produce a tide of double the ordinary height, so does the maritime traffic of the Channel mingle with that of Northern Europe in the port of London. Without this common centre of exchange neither would have attained its present importance.

The position of London is equally favourable in relation to the more remote parts of Europe and the other continents. As long as England was only feebly peopled by four or five million inhabitants, whose energies were almost perpetually being wasted in civil wars, London was unable to profit from the advantages which it possessed as an international emporium. But no sooner had England made up her mind to share in the wealth resulting from maritime enterprise than the geographical superiority of the Thames as a port at once revealed itself. London lies very nearly in the centre of the maritime regions of Europe, half-way between the Strait of Gibraltar and the North Cape of Scandinavia, whilst at the same time it occupies the centre of gravity of the great continental land masses. It is the natural point of departure for vessels trading either with the two Americas or the extreme East and the world of the Pacific. The great lines of navigation converge upon it from every quarter of the globe. The Mayor of London who ironically asked the King, who had threatened to remove the seat of his government, whether the citizens would be permitted to keep the Thames, had an inkling of the advantages London possessed as an international port long before they had fully revealed themselves.

London was already a town of some importance during the dominion of the Romans, for Tacitus refers to it as being famous for its commerce and the resort of numerous strangers. During the Middle Ages London grew but slowly, and its progress was repeatedly arrested by wars, commercial crises, and epidemics. Up

to the beginning of the eighteenth century Paris equalled it in population, and had no doubt surpassed it at various preceding epochs. But no sooner had England gained a footing in India, which gave London a fresh source of wealth through its commerce with the East, than the city on the Thames rapidly and definitely passed ahead of its rival on the Seine. Its population of scarcely over half a million souls in the beginning of the eighteenth century rose to nearly a million in the course of the succeeding hundred years, and has quadrupled since. The average normal increase, which during the preceding decade annually amounted to 45,000 souls, exceeds at present 60,000. This increase is the same as if a village of 170 inhabitants sprang daily from the ground, to be added to the existing

Fig. 89.—THE GROWTH OF LONDON.
Scale 1 : 178,500.



agglomeration of buildings and human beings. On an average a new house is built every hour of the day or night, and added to the 500,000 existing houses of the metropolis.* The absorption of the country by the great city proceeds with the inexorability of a natural phenomenon. The “ocean of bricks and mortar” expands without cessation, like the surface of a lake which has broken its embankments. And whilst London increases in extent, sending forth shoots in all directions like certain trees, the villages around it gradually grow into towns, until they are swallowed up by the overflowing metropolis. Three hundred years ago

* In 1878 17,127 new houses were built within the district of the Metropolitan Police, and 352 streets, with a total length of 55 miles, were opened to the public.

the City and Westminster became one; Greenwich and Woolwich are attached to their powerful neighbour by bands of houses; and Croydon, Wimbledon, Putney, Richmond, Kingston, Brentford, and other more remote towns and villages are on the point of losing their individual character and becoming suburbs of the all-devouring city. We smile now when told of the severe edict published by Queen Elizabeth which forbade the erection of any building whatsoever within 3 miles of London and Westminster, and required the demolition of all sheds constructed within the previous seven years, and of all buildings not then completed. And yet in 1602, when the Queen, dreading the mischief likely to arise from a further increase of the metropolis, sought to stop it for ever after by her edict, London had not the fifteenth part of its present population. Actually the 25,000 streets of London, if placed end to end, would stretch across Europe and Asia as far as the southern extremity of British India.

In the course of its expansion, at the expense of fields, meadows, and woods, London, like Paris, has converted its streams and rivulets into covered sewers. The Fleet has disappeared altogether, but its ancient course can still be traced by following the low-lying streets in the western part of the City. The Old Bourne, now corrupted into Holborn, was one of its feeders, and by its mouth the Thames formed a small harbour. The winding rivulet, on the banks of which stood Tyburn Tree, so often referred to in the history of England, has likewise disappeared for the greater part of its course, but it continues to feed a pretty sheet of water in Hyde Park. In the heart of London we only meet with a few trees to remind us of external nature, but the names of streets and districts, such as Hatton Garden, Spitalfields, and others, recall a time when there existed gardens famous for their roses and strawberries, and preserves in which the Lord Mayor and the Aldermen hunted the stag.* Most of the modern quarters of the town are laid out in such a manner as to enclose here and there a bit of veritable country, with clumps of trees, shrubberies, carefully kept lawns, and herds of browsing sheep. To these parks† and squares, and to the thousands of gardens attached to private houses, the town is indebted for much pure air and light. The removal of the primitive fortifications which formerly engirdled the City has allowed London to expand freely in all directions. Instead of raising tenement upon tenement, as in Paris, houses of moderate size have been reared side by side, and only in the business quarters has space been utilised to the full extent of its capacity. Thus, though the population of London is only double that of Paris, the area it covers is at least five times as great, and its inhabitants obtain a larger supply of respirable air. On an average every house in London is inhabited by seven or eight persons.‡

* Thornbury and Walford, "Old and New London."

† The thirteen parks of London cover an area of 2,223 acres—the West-end parks, from Whitehall to Kensington, embracing 788 acres.

‡ Average number of persons to each inhabited house in the metropolitan counties:—

	1851.	1861.	1871.
Middlesex	7·9	7·9	7·9
Surrey	6·3	6·4	6·5
Kent	5·7	5·8	5·6
England and Wales	5·5	5·4	5·3

Unfortunately the metropolis of England has not at its command a sufficient supply of pure drinking water. The liquid supplied to some of the quarters of the town abounds in organic matter in a state of decomposition; and the death rate rises there to double and even triple the height of what it is in more favoured localities, where the water supply is more satisfactory.* The Thames still supplies London with most of the water required for domestic purposes, and in the neighbourhood of London that river is not by any means a limpid stream. Its improvement has nevertheless been great since the middle of the century, when the whole of the London sewage found its way into it. At that time the water of the Thames was much polluted. The tide floated this matter up and down the river; the passing vessels stirred it to the surface; and it was not without some risk to health that passengers embarked in them. Even now the water of the Thames, polluted by the waste washed into it from the river banks, or thrown out by the crews of the vessels, is far from pure. A deposit of mud is left by it upon the flats and steps of the landing-places when it retires with the ebb tide. The Thames has been much "purified," as far as it flows through London proper; but this cannot be said of its lower course.

The main drainage of London was carried out between 1859 and 1875 under the supervision of the Metropolitan Board of Works. The sewage is carried to a considerable distance below London, and pumped into the Thames by powerful steam-engines erected at the Abbey Mills, near Barking Creek, and at Crossness Point, on the opposite bank of the river.† These works cost no less than £4,500,000, but they have by no means answered expectations. The metropolis has been purified, no doubt, but the towns near the outfall sewers complain of being poisoned, and the silt in the river increases from year to year. It was hoped more especially that the sewage discharged into the river would be carried away to the sea. Unfortunately a considerable portion of this sewage, after having been carried down stream by the ebb, returns with the flowing tide, and banks formed of sewage approach nearer and nearer to the towns in the neighbourhood of its outfalls. The Metropolitan Board of Works is responsible for this contamination. Several kinds of fish which formerly ascended the Thames have been driven away by these impurities. Whitebait, so highly esteemed by gastronomists,‡ and which were formerly caught as high up as Greenwich, are seen there no longer. The Dutch fishermen, who enter the Thames in their pursuit, restrict their incursions from year to year. In 1852 they came up to Erith; in 1859 they stopped short of Greenhithe; in 1862 they were driven from Gravesend; and at present they hardly pass beyond the Nore.§ And yet this sewage matter, which poisons the river and pollutes the air of the towns, might be usefully employed

* In 1877 the London water supply was classified as follows:—

Unexceptionably pure	. . . . .	7,000,000 gallons.
Sometimes pure	. . . . .	53,000,000 "
Polluted with sewage	. . . . .	61,000,000 "

† Total length of main sewers 254 miles, and of local sewers 776 miles. Daily discharge of sewage about 500,000 tons.

‡ According to Van Beneden (*"Patria Belgica,"* i. p. 326) the whitebait is a young herring, but other authorities maintain that it is a distinct species.

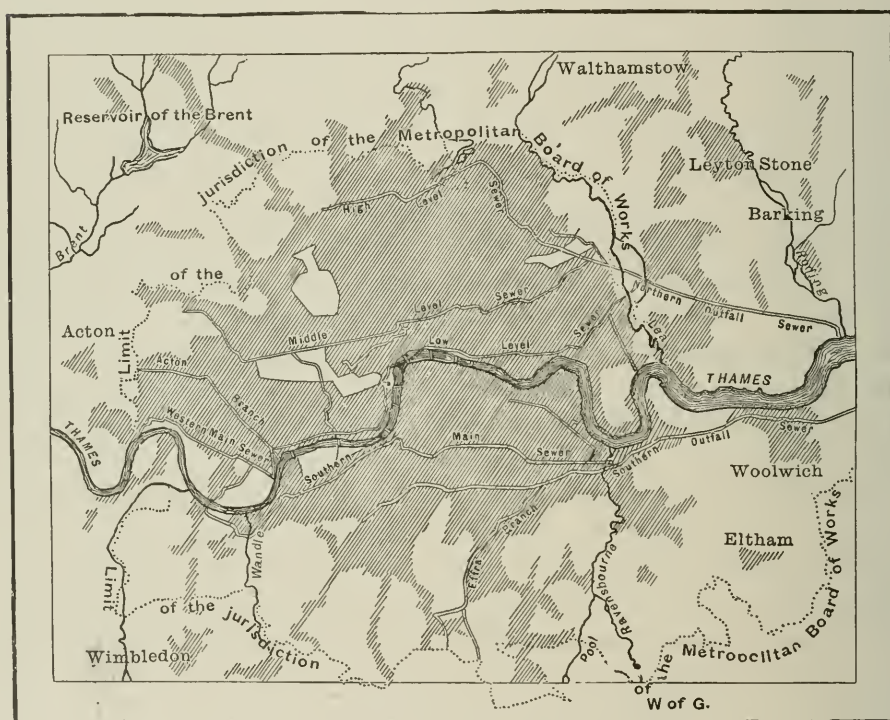
§ Calvert, Official Report, 1877.

in fertilising the lowlands along both banks of the Thames, and in converting unproductive mud-flats into rich pasture-grounds. Experiments made on various occasions have demonstrated that London gets rid at a considerable expense, and throws into the sea, an element of agricultural wealth equal in value to the annual produce of 7,660,000 acres.* Surely the example set by Paris, Danzig, Edinburgh, Coventry, and many other towns ought not to have been lost upon London; but no plan for utilising its sewage has hitherto been carried out effectually.

In the distribution of pure water the authorities of London have been no more successful than in the removal of the sewage, and in both respects they might

Fig. 90.—THE LONDON SEWERS.

Scale 1 : 250,000.



— 2 Miles.

have advantageously followed the example of Paris. An enormous capital has been expended in the construction of aqueducts, reservoirs, filtering beds, and other appliances. The water companies, who draw most of their supplies from the Thames, have grown rich and powerful, and they have hitherto successfully resisted the introduction of every improvement.† The first water supply of London on a large scale was devised by Peter Morrys, a German, who put up a water-wheel under one of the arches of London Bridge. This wheel was set in motion by the

* J. J. Mechi, *Times*, September 27th, 1878.

† Their capital amounts to £12,000,000; their annual expenditure to £520,000; their income to £1,327,300. They supply 121,000,000 gallons daily, being at the rate of 28 gallons per head of the population.

tidal current, and worked a pump which forced the water through pipes into the streets and houses. These water works turned out a great success, and they disappeared only with old London Bridge in 1831. In 1606 the City obtained an Act of Parliament for bringing a stream of pure water from Hertfordshire into London, but, frightened at the magnitude of the task which they had undertaken, they were only too happy when Hugh Myddelton undertook to carry out

Fig. 91.—LONDON: HYDE PARK AND THE SERPENTINE.



the scheme at his own risk. This was the origin of the New River Company, one of the most successful undertakings in the world. The cost of this enterprise only amounted to £17,000;* but a few years ago a single share of the company was sold for £50,000. At the present time the London water supply forms the subject of serious discussion, and various schemes have been brought forward for rendering the metropolis independent of a river which receives the sewage of a million inhabitants. It has been proposed to collect the rain-water which

* See Timbs's "Curiosities of London."

falls on Bagshot Heath, to the south-west of London; or to draw a supply of 100,000,000 gallons daily from the head-streams of the Severn, 180 miles distant; nay, even to construct an aqueduct, some 250 miles in length, for conveying to London the limpid water of the lakes of Cumberland. There can hardly arise a question of cost in the case of the wealthiest city of the world, which a supply of pure water would at the same time convert into the most salubrious.

Gas was first introduced into the London streets in 1807, when Winzor, a native of Znaim, in Moravia, experimentally lit up one side of Pall Mall. He and his supporters were incorporated, in 1812, as the Chartered Gas Company. At the present time there are six gas companies, who consume an immense quantity of coal, and effectively light up London during the night.* The electric light, however, is invading the monopoly hitherto enjoyed by the companies, and its use in streets, warehouses, and public buildings is becoming almost daily more general.

Superficial observers frequently talk of the uncertainty of life in London, whilst that city, notwithstanding the bad quality of some of the water supplied to it, is in reality one of the most healthy in Europe, and certainly that one among the great capitals in which the number of births is most in excess of the number of deaths.† Four-fifths of the annual increase of the population of London are due to this excess, the remainder resulting from immigration. It is more especially the natives of the surrounding counties who are attracted to London, and the gaps left by these migrations are filled up by an inflow from the more remote districts.‡ Many of the female servants of London are included amongst these immigrants. There are 1,137 females to every 1,000 males. It is said sometimes that there

* The six companies have a capital of £12,682,000; they annually consume 1,560,000 tons of coal, and produce daily about 42,000,000 cubic feet of gas of an illuminating power of twelve candles, for which they charge 3s. 9d. per 1,000 cubic feet.

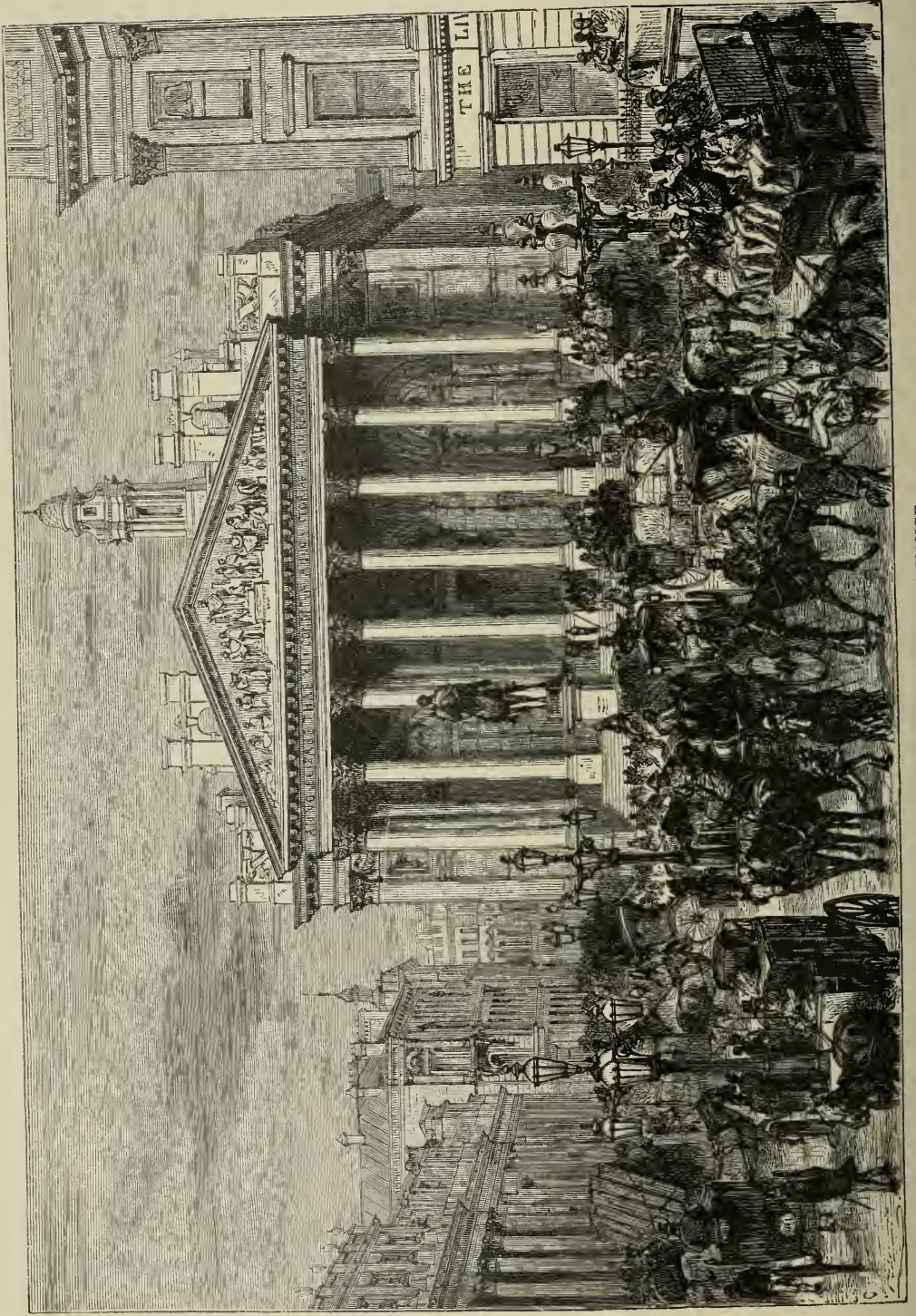
† Birth rate and death rate in a few large towns (1878):—

	Births to 1,000 living.	Deaths to 1,000 living.
London	36·2	23·5
Paris	—	24·6
Berlin	41·8	29·9
Vienna	38·0	29·6
Rome	27·2	29·6

‡ The population of London according to birthplaces (1871):—

	Number.	Per Cent.
Natives of London	2,055,576	63·2
„ Middlesex, Surrey, Kent, Essex, Bucks, and Herts	317,202	9·8
„ Other parts of England	634,620	19·5
„ Monmouth and Wales	22,262	0·7
„ Scotland	41,029	1·3
„ Ireland	91,171	2·8
„ British Colonies	25,494	0·8
„ Foreign countries	66,101	2·0
Born at sea	1,205	—

Amongst the foreigners there were (exclusive of naturalised British subjects) 19,773 Germans, 10,719 Frenchmen, 4,825 Dutchmen, 4,229 Poles, 2,287 Scandinavians, &c.

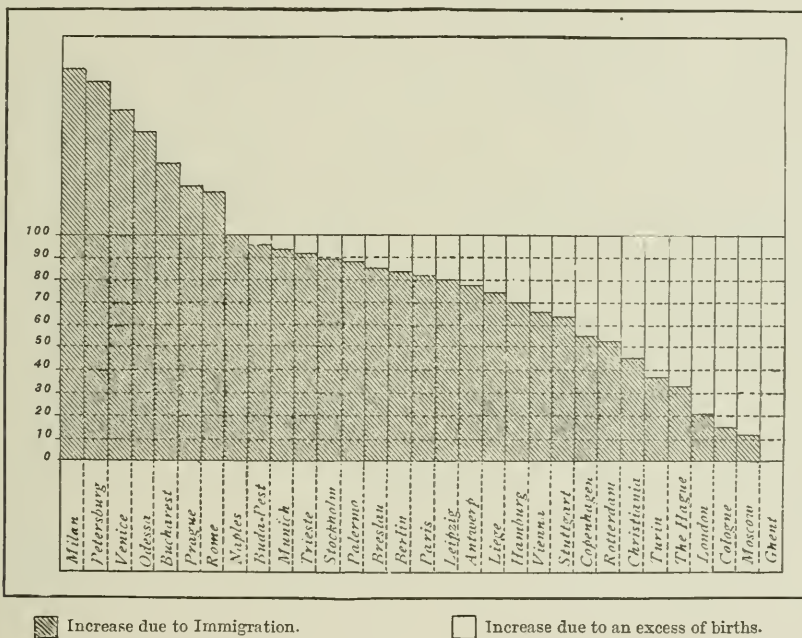


LONDON—THE ROYAL EXCHANGE.

are more Scotchmen in London than in Edinburgh, and more Irishmen than in Dublin. This is a mistake, though the Scotch and Irish who have settled in London, together with their descendants, are sufficiently numerous to form two very respectable towns. The number of Jews is more considerable than in any other town of England. Gipsies have permanently established themselves in the neighbourhood of Dulwich; whilst in the east, near the Docks, we meet with representatives of nearly every nationality on the face of the globe, including Hindus, Malays, Chinese, and Polynesians. Nowhere else in Europe are we presented with equal facilities for ethnological study. The foreign European population of London is proportionately not as numerous now as it was in the sixteenth century.* Most of these foreigners come to London in search of business; and

Fig. 92.—INCREASE BY IMMIGRATION, AND EXCESS OF BIRTHS OF THE LARGE CITIES OF EUROPE.

According to Dunant.



whilst the English residents at Paris have gone there to spend, the Frenchmen whom we meet in London are intent upon making money. Hence the striking contrasts between the two colonies, which are not those of race only.

In order to gain some idea of the immense multitudes of London it is by no means necessary that we should be present on one of those occasions when a public procession through the streets attracts its multitudes, or take part in the festivities inseparably connected with public holidays. It is quite sufficient to visit some of the leading thoroughfares of the City, such as Cheapside, Ludgate Hill, Cannon Street, or Lombard Street, during business hours. Carriages, omnibuses, and vehicles of every description appear at first sight to be mixed up in inextricable

* In 1580 there were 6,502 foreigners amongst a total population of at most 150,000 souls, or 4·3 per cent.; in 1871 there were 66,101 foreigners, equal to 2·0 per cent. of the total population.

confusion; but after awhile we perceive that in this moving chaos there are two well-marked currents, fed by the numerous side-streets as by so many affluents, and that these currents, though flowing in opposite directions, carefully avoid each other. Beneath the crowd passing along on the tops of omnibuses and in carriages there moves another crowd, which glides between the wheels, dives beneath the horses' heads, and flows in contrary streams along the pathways. Now and then may be heard the dull rumble which announces the arrival of a train; the railway station sends forth its crowd of passengers, and these are quickly lost amongst the greater crowd pouring through the streets. London Bridge, the principal means of communication between the City and Southwark, is daily crossed by at least 300,000 persons, and from year to year the traffic which flows across it increases in bulk.* Reconstructed in 1825, to accommodate the growing traffic, it has become necessary since to widen it once more, in order that it may afford a channel broad enough for the "river of men which flows across the unconscious river beneath."† Standing upon this bridge and looking seawards, we see both banks fringed with a forest of masts, the intervening space being hardly wide enough for the manœuvring vessels, carried along by the current or struggling against the tide. Above bridge numerous small steamers, crowded from stem to stern with passengers, appear and disappear under the arches of a railway bridge quivering almost incessantly beneath passing trains. These miniature steamers, which stop every instant at some pier, and start as soon as they have discharged or replenished their human cargoes, may be likened to moving quays travelling from one end of the town to the other.

The metropolitan railways, carried along high viaducts above the houses or running through tunnels and deep cuttings beneath them, are great passenger high-roads, in no way inferior to the streets of the City, and far more important than the Thames. The number of passengers who arrive daily at the railway stations of London cannot be less than a million. In the more frequented underground stations, the din and rumble of carriages are incessant, and hardly has a train departed before another makes its appearance. Between Brentford and Greenwich, Sydenham and Highgate, there are no less than 150 stations, great and small, and all the quarters of the town have been placed in communication with each other and with the great trunk lines which connect London with the provinces. All but the local traffic is carried on by steam. On the approaching completion of the Inner Circle, it is proposed to attach the trains to cables set in motion by stationary engines, and they will then roll along without intermission like planets in their orbit. It is mainly owing to these facilities for rapid locomotion that London has been able to spread itself over the surrounding country, much to the advantage of public health. If the aid of steam had not been invoked, London, like Paris and most other continental towns, would have been compelled to grow in height by placing story upon story. Nevertheless, even London can show a few of those huge edifices in which thousands of human beings live, floor

* In 1875 London Bridge was crossed daily by 20,000 vehicles, and by 170,000 persons on foot.

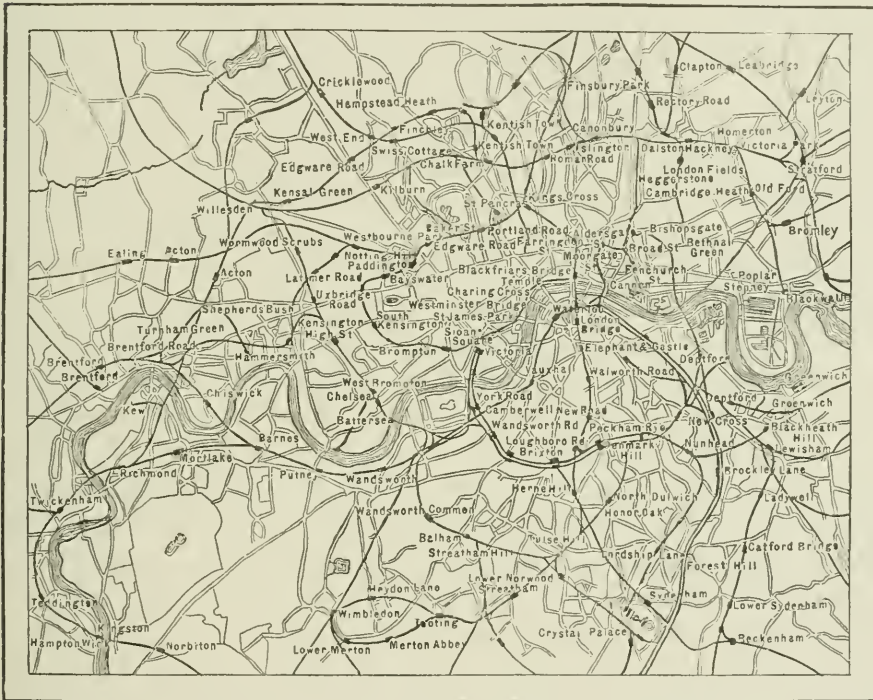
† Charles Dickens.

above floor, within a narrow area. Such is the gigantic Midland Hotel at the St. Pancras station, a huge mass of brick and iron, with towers, pavilions, and triumphal gateways; such also are the other hotels constructed for the convenience of travellers contiguous to the great railway termini. These palaces tower high above the surrounding houses, but they are scarcely sufficiently capacious to accommodate the crowds that flock to them.

So prodigious is the extent of London that there exists no point of vantage where the whole of it can be seen spread out beneath us, even though the prospect be not obscured by fog or smoke. From the top of the Monument

Fig. 93.—RAILWAYS OF LONDON.

Scale 1 : 350,000.



3 Miles.

raised in the centre of the City we merely see the roofs of numberless houses, the steeples of hundreds of churches, and a crescent-shaped reach of the river, with its bridges, steamers, and forests of masts, lost on the horizon. From Primrose Hill or the heights of Hampstead or Highgate, on the north of London, we look down upon the parks, gardens, and villas, beyond which extends the ocean of houses surmounted by the cupola of St. Paul's; but the Thames and its port are beyond the reach of vision. From Greenwich, or from the tall tower of the Crystal Palace, other portions of the metropolis can be seen or divined, but the greater part of London is always excluded from the immense panorama. In order to obtain a true idea of the prodigious size of the City we must necessarily explore its various

quarters, all differing in aspect and population. London, unlike Paris in this respect, has no collective personality. It is not, strictly speaking, a town at all, possessed of a well-defined individuality, and differing in any marked way from the towns in any other parts of Great Britain. Its growth has been too rapid to enable it to develop a well-defined character of its own. Like a plant whose sap rises too quickly, it has not displayed the firmness of contour and special physiognomy which are the characteristics of organisms of slower growth. London, very unlike Paris and most of the great cities of the continent, has not grown around a kernel, but is an agglomeration of distinct towns, amongst which the City of London, Westminster, and Greenwich were the most considerable. The vast metropolis is the outcome of a combination of numerous towns and villages placed in contiguity to each other. This mode of growth prevented London from acquiring a distinct personality. It is, above all, an assemblage of distinct worlds—worlds of warehouses, banks, factories, princely residences and villas—each world having its proper physiognomy and history. It is an organism with several centres of life, such as are typified by the Houses of Parliament, Charing Cross, the Bank of England, and the Docks. But nevertheless nearly all its quarters agree in this—that their houses are constructed of the same material and covered with the same layer of grime resulting from the smoke-laden fogs. Though London occupies a geological basin similar to that of Paris, it does not enjoy the advantage of having quarries of limestone and gypsum in its neighbourhood. Hence most of its houses are built of brick, and the stone for the more monumental buildings has to be brought from quarries situated at an immense distance. The rocks of Yorkshire furnished the limestone required for the construction of the Houses of Parliament; Portland supplied the materials for St. Paul's and many other buildings. The Tower of London is built of Caen stone, for it was in their duchy of Normandy that the early Kings of England sought the materials required for raising their palaces and fortresses. Even now a considerable number of vessels annually leave the basin of the Orne laden with stone for London builders. But the granite and limestone of the monumental buildings are covered with the same coating of grime which disfigures the meaner houses. The showers of soot discolour even the leaves of trees, the lawns and garden flowers, and a few years suffice to blacken the walls of buildings. It is matter for surprise that rich Englishmen, so scrupulously careful of the cleanliness of their persons and homes, should not have adopted more extensively the Portuguese and Brazilian fashion of covering their houses with glazed bricks, which can be washed. In the finer quarters of the West-end, however, such bricks are gradually coming into vogue.

London, like most other European towns, expands principally towards the west, for it is from that direction that the purifying westerly winds blow during the greater part of the year. There are, however, other circumstances which have caused London to grow in the direction of the setting sun. The soil on that side is solid, whilst swampy lowlands stretch out towards the east; the Thames above London Bridge can be crossed more easily than below it; and houses have been built in preference in localities where the communication between bank

and bank presents the least difficulties. It results from this that the centre of London is continually gravitating towards the west. The Roman milestone which may still be seen in the wall of St. Swithin's Church, opposite Cannon Street station, and which probably marked the spot whence the roads from Londinium to the other towns of Britain diverged, no longer occupies the centre of London, nor does the City. As to the latter, it by no means presents that aspect of antiquity which might be expected. London is essentially a modern town, even in those parts which occupy the site of the Roman Londinium, six-sevenths of its area having been devastated by the great fire of 1666, commemorated by a monumental column near London Bridge. This fire destroyed over 13,000 houses, 85 churches, and the Guildhall, and there now remain, independently of the Tower, only a few buildings anterior in date to the seventeenth century. Most prominent amongst these are St. Bartholomew's Church, portions of which belong to the time of Henry I.; the beautiful round church in the Temple, constructed between 1185 and 1240; and St. John's Gate, which belonged to a hospital of the Knights of St. John. Another old church is that of St. Saviour's, Southwark, near the southern end of London Bridge. The old walls which formerly surrounded the City have likewise disappeared, the last remaining gate, that of Temple Bar, having been demolished quite recently, on account of its impeding the traffic which flows through the Strand into Fleet Street. It was on Temple Bar that heads of traitors were exposed to the public gaze within the last century. The gate used to be closed whenever the sovereign approached the City, the Lord Mayor waiting on the City side, prepared to make over to him his sword of office, which he was expected graciously to return.

The City, like the central quarter of Paris, contains a considerable number of public buildings, but its most striking edifices are banks, warehouses, and offices. These palatial structures of granite, marble, or brick, five or six stories in height, are situated, for the most part, in narrow and winding streets and alleys. During the night many of them are left in the care of housekeepers or of the police. Early in the morning thousands of men take the road towards the City from all the suburbs of London, from the towns in its neighbourhood, and even from Brighton. The trains deposit their freights in the stations near the Bank, omnibuses contribute their due contingent of passengers, and the streets swarm with life. More than a million of human beings then crowd this hive of industry. As the evening approaches the tide begins to retire. Trains, omnibuses, and steamers fill once more, but this time they carry their passengers away from the City. There remain then hardly over 70,000 residents, where only a few hours before commercial affairs of interest to the entire world had been dealt with. More than 2,000 houses stand almost empty. The number of residents decreases with every decade, and the City is more and more becoming exclusively a place of business.* But it is not merely

* Population and inhabited houses of the City:—

1801	.	.	.	16,508 houses,	128,833 inhabitants.
1861	.	.	.	13,298 „	112,063 „
1871	.	.	.	5,309 „	74,732 „

a desire of concentrating the transactions of commerce in this quarter that causes the resident population to diminish, for the City authorities, by opening wide thoroughfares through the districts inhabited by the poor, work towards the same end. When Farringdon Street was extended through the old valley of the Fleet, nearly 8,000 workmen's families found themselves homeless at a single blow, and their humble dwellings made room for public buildings, railways, and piles of offices. In the course of the last forty years at least 50,000 workmen have in this manner been driven out of the City, and compelled to herd together in the adjoining districts. The number of paupers has grown small in the City, but it has increased all the more rapidly in the neighbouring parishes.

The very poorest quarters of London have immediate contact with that wealthy City, which not many years hence will count only employés and housekeepers amongst its resident population. The labyrinth of streets around the Tower and the Docks is dreaded by the stranger, and not often entered by the Londoner residing in more favoured districts. The mud is carried from the streets into the passages of the houses; the walls are bespattered with filth; tatters hang in the windows; a fetid or rancid odour fills the atmosphere; while most of the men and women you meet in the streets have sunken eyes and emaciated limbs. The soiled garments which they wear have originally belonged to the fine ladies and gentlemen of the West-end; they have changed hands ten times since their original owners parted with them, and finish as rags upon the bodies of the inhabitants of Shadwell and Wapping. Certain narrow streets in Rotherhithe, Bermondsey, and Lambeth, to the south of the Thames, are likewise the seats of misery, and it is with a feeling of relief we emerge from them, and obtain a sight of the Thames, of some wide thoroughfare, or of a public park. How vast is the contrast between these wretched quarters and the sumptuous suburbs; how great the difference in the modes of life of the inhabitants and the burdens they are called upon to carry! The annual death rate varies between 14 and 60 to every 1,000 persons living, according to the streets, and death gathers its harvest most rapidly where want of work, of bread, and of other necessities facilitates its task. The misery London hides is indescribable.

The districts which bound the City to the north and east, such as Spitalfields, Bethnal Green, and Clerkenwell, are principally inhabited by artisans, and separate the poorest quarters of London from those mainly occupied by the lower middle classes. The houses there are for the most part of the common English type. An area, 6 to 10 feet deep, and bounded by railings, separates the street from the house. A flagstone or "steps," thrown across this "ditch" like a drawbridge over the moat of a fortress, lead to the entrance of what has very appropriately been described as the Englishman's "castle." Separate steps usually lead down into the area and to the kitchen and coal cellar. There are no "spy-glasses," such as may frequently be seen in the Low Countries, and the sash-windows towards the street remain obstinately closed. Flowers usually ornament the rooms, but cannot be seen from the street, for they are there for the gratifica-

tion of the owner, and not for that of casual passers-by.* The house, nevertheless, is a hospitable one. If its outer walls are blackened with soot, the steps leading up to the door are irreproachably clean, and it is the pride and ambition of London housewives to keep them so.

Farther west, in the district of Marylebone, the houses are higher, the areas wider and deeper, and open squares planted with trees more numerous, for we there already find ourselves in a quarter largely inhabited by the wealthier middle class. During last century Marylebone was the aristocratic quarter, which has now moved westward, to the neighbourhood of Hyde Park and Kensington Gardens, Belgravia being looked upon as its centre. In this part of the town every square or street presents itself architecturally as a whole. There are streets lined uninterruptedly for half a mile and more with porticoed houses, all apparently forming part of one huge building. Elsewhere the residences are detached, but they still resemble each other in size and architectural accessories, such as balconies and conservatories. The genius of the architects is only occasionally allowed to reveal itself in some separate building. Acres, nay, square miles, are covered with houses designed on the same pattern, as if they had come out of the hands of the same artisan, like the *châlets* in a Swiss toy-box. Their stairs and fireplaces occupy similar positions; their mouldings and decorations have been supplied in thousands by the same manufacturer. On entering such a house, there is no need for a searching examination; its internal arrangements are rigidly determined in advance, and their regularity is greater than that of the cells in a beehive. Such is the inevitable result of the employment of large capital in the simultaneous construction of hundreds of houses. An exploration of the new quarters, which cover so considerable a portion of the county of Middlesex to the west of older London, makes us marvel at the large number of men rich enough to live in such luxurious dwellings. Broad flights of steps, carefully kept front gardens, rare flowers, marble terraces, and plate-glass windows enable us to judge of the wealth of the interiors; and certes, if we enter one of these houses, we find that carpets, curtains, and every article of furniture is of the most substantial quality.

Several of the palatial residences in the older parts of the town were left behind when the aristocracy effected their exodus to the westward, and they now rise like islands in the midst of the quarters invaded by commercial London. Even Buckingham Palace and the royal palace of St. James lie to the eastward of Belgravia, but the latter of these is merely used on rare occasions of state, whilst Buckingham Palace is perfectly isolated, being surrounded by parks and royal private gardens. As to the club-houses, which on account of their noble proportions and architectural merits are undoubtedly amongst the great ornaments of London, they have naturally been built in that part of the town where parliamentary, aristocratic, and commercial London approach nearest to each other. St. James's Park bounds this "London of the Clubs" in the south, Regent Street in the east, and Piccadilly, one of the great seats of the retail trade, in the north.

* We fancy windows in London are kept closed to prevent the entrance of dust, and prized flowers are not exposed on the window-sill because the London atmosphere does not usually agree with them.—*Ed.*

Of all the old buildings of London the Tower is the most venerable. It was erected by William the Conqueror, to the east of the City and on the banks of the Thames, on a site perhaps previously occupied by a Roman castle, for coins of the Empire and the foundations of walls, believed to be very ancient, have been discovered there. Looking across the wide moat of the fortress, now laid out as a garden and drill-ground, there rises boldly and commandingly the glorious old pile known as the "White Tower." This keep of the ancient fortress, in its simple grandeur, contrasts most advantageously with the pretentious buildings of more modern date which surround it. Its walls, so old chronicles tell us, were "cemented with the blood of animals," and in its neighbourhood the blood of human beings has been shed most freely. Leaving out of account those who fell on both sides during revolutions and civil wars in the defence or attack of the fortress, as also the obscure prisoners who were murdered within its precincts, we can count

Fig. 94.—BUCKINGHAM PALACE.



many personages known to history whose heads fell on Tower Green, close to the unpretending church of St. Peter ad Vincula, or on Tower Hill, outside the entrance gate. It was here that the sovereigns of England caused to be beheaded rivals to kingly power, courtiers of whom they had grown tired, wives whom they repudiated. Here, too, perished some of those men whose names are justly venerated in England, and amongst them Algernon Sidney, whom Charles II. caused to be executed in 1685. The "Bloody Tower" was the scene of the murder of the children of Edward IV. The history of the Tower is that of royal crimes. "Upon its blackened walls are painted, in lines of blood, the ambition of Edward I., the luxuriousness of Henry VIII., the fanaticism of Mary, the cruel vanity of Elizabeth." Long before the destruction of the French Bastille, the Tower of London had twice fallen into the hands of a revolted people; but neither Wat Tyler nor Jack Cade thought of demolishing the fortress, which up to 1820 served as a state prison. The Tower is now used as an arsenal and armoury,

and the royal jewels are kept there. The lions of the Tower, upon whose life, following an old legend, depended that of the sovereign, were transferred in 1834 to the Zoological Gardens.*

Westminster Abbey, around which was built the city of the same name, an old rival of that of London, is less ancient than the Tower. It only dates back to the thirteenth century, but it rises on the site of older churches, the first amongst which was encircled by an arm of the Thames, long since dried up. Westminster Abbey, notwithstanding modern additions and restorations, is one of the most perfect Gothic churches of England, one of those whose aspect is most harmonious. The interior, though too much cumbered with mortuary monuments, is more especially remarkable for its boldness and airiness. The apsidal chapel of Henry VII., in which the Knights of the Most Noble Order of the Bath used to meet, is ablaze with light and decorations. Arches of fairy-like grace support the

Fig. 95.—WESTMINSTER ABBEY.

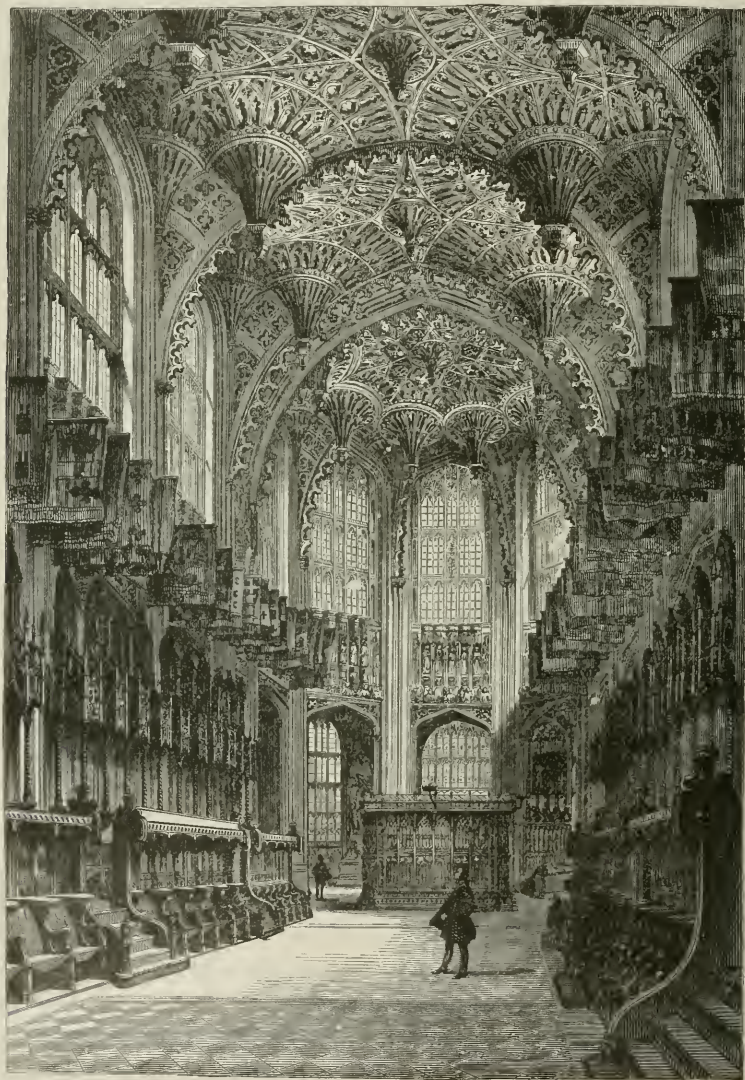


fretted vault, “pendent by subtle magic,” a marvel of constructive skill. Westminster Abbey is the St. Denis and Pantheon of England thrown into one. In it most of those men whose memory is venerated by the nation have found a last resting-place, or at least a monument has been erected to their memory. But besides men of distinction, how many are there not who have found a place in this edifice who were great only in birth, wealth, or in their own conceit; and in addition to works of the sculptor’s art, great in design and sober in taste, how frequently are we not offended by ridiculous allegories and boastful inscriptions! Amongst the most remarkable monuments are the sarcophagus of Henry VII. and his wife, and the seated statue of Lord Mansfield; but who could pass without notice the monuments or tombstones of Edward the Confessor, Edward III., Jane Seymour, Mary Stuart, or Queen Elizabeth, or those of statesmen such as Monk, Canning,

* Hepworth Dixon, “The Tower of London.”

Chatham, Pitt, Fox, Warren Hastings, and Robert Peel, whose influences upon the destinies of the nation have been so pronounced? Newton, Herschel, Watt, Humphry Davy, Telford, and Young are buried at Westminster. Here, too, are interred, or commemorated by monuments, mostly in the "Poets' Corner," Chaucer, Ben Jonson, Camden, Milton, Butler, Gray, Spenser, Addison, Dryden, Congreve,

Fig. 96.—WESTMINSTER ABBEY: HENRY VII.'S CHAPEL.



Thomson, Casaubon, Goldsmith, Southey, Macaulay, Dickens, Thackeray, Paoli, Wilberforce, Händel, Kemble, Mrs. Siddons, and Garrick. Lastly, amongst those who have made the earth their study, are Stamford Raffles, Rennel, Chardin, Lyell, and Livingstone.

Westminster Abbey has survived, notwithstanding the Reformation. It still is



LONDON.—THE HOUSES OF PARLIAMENT, AS SEEN FROM LAMBETH.

in possession of its church, chapter-house, and cloister, has retained its ancient institutions, and grown in wealth. Its Dean is a prince of the Church, who lives in a Gothic mansion adjoining the Abbey, and enjoys an annual stipend of £2,000. The Chapter has a revenue of £60,000, out of which 1,000 guineas are annually expended upon the public school dependent upon it. In many respects this Westminster School resembles a grammar school of the sixteenth century rather than a modern place of instruction.* It was near it, in the old Almonry of Westminster, that William Caxton, before the year 1477, set up the first printing-press in England.

Close to the ancient abbey, on the banks of the Thames, rises Westminster Palace, reconstructed since the fire of 1834, to serve as a seat for the two Houses of Parliament. This Gothic edifice is one of the vastest in the world, for it covers 8 acres, and contains more than a thousand rooms of all sizes, a chapel, and 2 miles of corridors. But, for all this, the building has not realised the expectations of those who caused it to be constructed. If worthy of England by the wealth of its decorations and its size, it is hardly so as regards its beauty, and still less so with respect to its internal arrangements. Famous Westminster Hall, a remnant of the old palace, has been embodied in the modern structure. It is a superb room, 250 feet in length and 68 in width, spanned by a remarkable roof supported on sculptured rafters of chestnut-wood. The parliamentary commission charged with the selection of a plan is said to have vitiated the original design of the architect, Sir Charles Barry. It certainly failed in selecting a stone capable of resisting the deleterious effects of the London climate. The magnesian limestone from Anston, in Yorkshire, is rapidly crumbling to pieces, and had to be covered with silicates to stay its decay. But whatever art critics may say, there are parts of the building deserving of our admiration, nor can we contemplate without delight the long façade reflected in the Thames, the slender clock tower with its gilded roof, or the more compactly built Victoria Tower, rising to a height of 336 feet, and commanding all surrounding buildings.

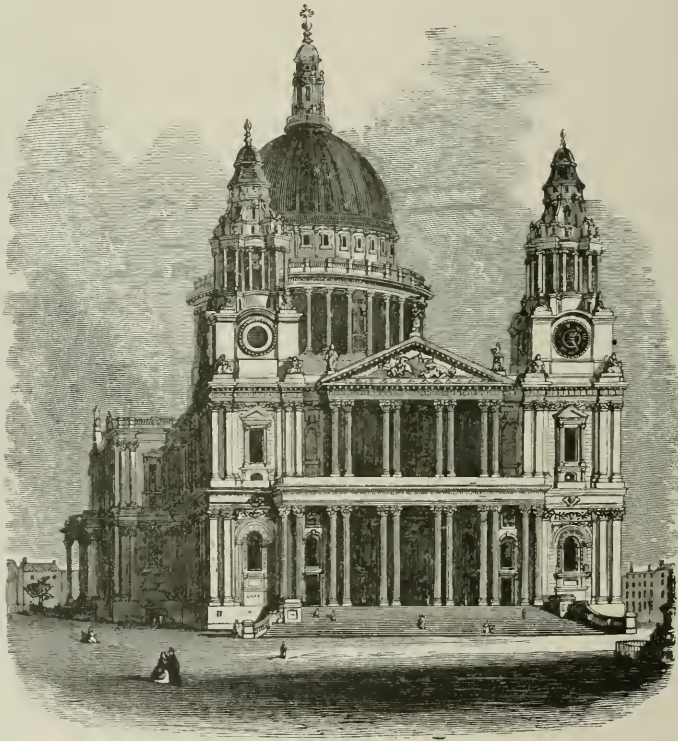
The dome of St. Paul's Cathedral rises even higher than the towers of Westminster, and stands out nobly above the houses of the City. Of all the monumental buildings of London this one is the most superb of aspect, that which is visible from the greatest distance, and which, owing to its commanding position, is best entitled to be looked upon as the veritable centre of the metropolis. This edifice is the masterpiece of Christopher Wren, who built many other churches, all in different styles, as if it had been his aim to grapple with and solve all the problems which present themselves to the architect. The edifice was raised between 1675 and 1710, on the site of a cathedral swept away by the great fire of 1666. Its principal features are a double portico of coupled columns, forming the west front, and a gigantic dome of most noble proportions, rising to a height of 360 feet, including its lantern. Seen from the Thames, the grandeur of this dome, hung in a bluish haze, is best brought home to us. But the interior of the building hardly corresponds with the magnificence of its external features. The bare walls are of repellent

* Demogéot et Montucci, "De l'Enseignement secondaire en Angleterre et en Écosse."

coldness, while many of the monuments placed in the nave and the aisles are bad in taste, and altogether out of keeping with the character of the building. Plans for decorating the interior, said to be in accordance with the original conceptions of the architect, are, however, being carried out. Military and naval heroes are most prominent amongst those to whom the honour of interment in St. Paul's has been accorded, the foremost places being occupied by Nelson and Wellington. By their side, room has been found for a large band of scholars and artists, including William Jones, Joshua Reynolds, Thomas Lawrence, Rennie, and last, not least, Sir Christopher Wren, its architect.

There are in London about 1,200 churches, chapels, and synagogues, and

Fig. 97.—ST. PAUL'S CATHEDRAL.



many of these buildings are remarkable for their purity of style, which the modern English architect knows how to imitate with great aptitude, or for the wealth of their internal decoration. Amongst the multitude of its other buildings, including palaces, Government offices, theatres, clubs, hospitals, and schools, London may boast of several distinguished for the beauty of their architecture. Prominent amongst these are the new Courts of Justice, close to the site of old Temple Bar; St. Thomas's Hospital, opposite the Houses of Parliament; Albert Hall, a building of magnificent proportions, facing the gilt statue of the Prince Consort on the southern side of Kensington Gardens; and Somerset House, between the Strand and the Victoria Embankment. But

of all the many buildings of London there are none capable of conveying a higher notion of its might than the seventeen bridges which span the Thames between Hammersmith and the Tower. Some of these are built of granite, others of iron; they all vary in aspect, and are sometimes of superb proportions. Eight of them are met with between Westminster Palace and the Pool, or Port of London, a distance of less than 2 miles by the river, and three of these vibrate almost incessantly beneath the weight of passing railway trains. Until quite recently it was impossible to admire these bridges without embarking in a steamer; but the Thames has now been "regulated" for a considerable portion of its course, and superb quays have taken the place of fetid banks of mud, left dry by each receding tide. The Victoria Embankment now stretches for 6,640 feet from Westminster to Blackfriars Bridge. Its river wall, of solid granite, rises 40 feet above low water, and rests upon a foundation

Fig. 98.—SOMERSET HOUSE AND THE VICTORIA EMBANKMENT.



descending to a depth of from 16 to 40 feet. Public gardens and rows of trees occupy a considerable part of it, and gladden the eyes which formerly turned away with disgust from wretched hovels and narrow alleys, washed by the turgid waters of the Thames. Upon this embankment stands "Cleopatra's Needle," one of the forty-two obelisks known to exist in the world. It was brought thither from Alexandria. Thanks to the use of hydraulic rams, twenty-four men were enabled to raise this monument; whilst Lebas, in 1836, employed 480 persons in the erection of the Obelisk of Luxor; and Fontana, in 1586, required the services of 960 men and 75 horses to poise the Needle on the Piazza di San Pietro at Rome.

Above London Bridge numerous bridges facilitate the intercourse between the two banks of the river, but lower down the Port begins, with its warehouses, jetties, landing-stages, and cranes. It has not hitherto been found feasible to throw a

bridge across the river below London Bridge without unduly interfering with the traffic, and recourse has been had to tunnels. One of these underground passages, through which a railway now runs, has become famous on account of the difficulties which Brunel, its engineer, was compelled to surmount in the course of its construction. In 1825, when he began his work, his undertaking was looked upon as one of the most audacious efforts of human genius; for experience in the construction of tunnels had not then been won on a large scale, and nearly every mechanical appliance had to be invented. Quite recently a second tunnel has been constructed beneath the bed of the Thames, close to the Tower. Instead of its requiring fifteen years for its completion, as did the first, it was finished in hardly more than a year; its cost was trifling, and not a human life was lost during the progress of the work.* At the present time a third tunnel is projected for the Lower Thames, and the construction of a huge bridge near the Tower is under discussion. In order that this bridge may not interfere with the river traffic, and yet permit a stream of carriages to flow uninterruptedly across it, it is proposed to place two swing-bridges in its centre, which would successively be opened in order to permit large vessels to pass through.

Amongst the public buildings of London there are many which are not visited because of their size or architecture, but for the sake of the treasures which they shelter. Foremost of these is the British Museum—a vast edifice of noble proportions, with a lofty portico. But no sooner have we penetrated the entrance hall than we forget the building, and have eyes only for the treasures of nature and art which fill its vast rooms. Its sculpture galleries contain the most admired and most curious monuments of Assyria, Egypt, Armenia, Asia Minor, Greece, and Etruria. It is there the lover of high art may contemplate with feelings akin to religion the tombs of Lycia, the fragments of the Mausoleum, the columns from the Temple of Diana of Ephesus, the Phrygian marbles, and the sculptures of the Parthenon. Since Lord Elgin in 1816 brought these precious marbles from Athens to the banks of the Thames, it is to London we must wend our way, and not to Hellas, if we would study the genius of Greece. Here, too, we find the famous “Rosetta stone” which Young sought to decipher, and which furnished Champollion with a key for reading the hieroglyphics of Egypt. Papyri of three and four and perhaps even five thousand years of age, and the brick tablets which formed the library in the palace of Nineveh, are likewise preserved in the British Museum. In the course of its hundred and twenty-seven years of existence between 1753 and 1880 the British nation has expended upon this Museum the respectable sum of £5,600,000. The library attached to the Museum, notwithstanding its 1,500,000 volumes, is as yet less rich than the Bibliothèque Nationale of Paris, but, being liberally supported, it increases rapidly, whilst its admirable arrangements attract to it scholars from every part of the world. The reading-room itself, a vast circular apartment covered by a dome 140 feet in diameter and 106 feet in height, and lit up during the evening by electric lights, is deserving our admira-

* Brunel's tunnel cost £454,715, the “subway” near the Tower only £16,000. The former consists, however, of two arched passages 1,200 feet long, 14 feet wide, and 16½ feet in height; whilst the latter, though 1,330 feet in length, is merely an iron tube of 8 feet in diameter.

tion. In it are arranged a classified catalogue in a thousand volumes, and 20,000 works of reference, freely at the disposal of the readers. Unfortunately the Museum authorities are much hampered for want of accommodation. Some of the most precious sculptures have had to be relegated to sheds or vaults, and many offers of donations have been declined owing to want of space.*

The National Gallery occupies a magnificent site in Trafalgar Square, in which artesian wells send forth fountains of water. There does not, however, exist another building in London which stands so much in need of an apology. True it is stated to be merely a temporary home for the great National Gallery, but the paintings have nevertheless been kept there for over half a century. The National Gallery started with a small collection of forty paintings, but purchases and donations have caused it to grow rapidly. In a single year (1872) seventy-seven paintings, of the value of £76,000, were added to it, and it includes now more than a thousand paintings, together with several works of the sculptor's chisel. The large funds at its disposal have enabled its trustees to secure many of the most highly prized treasures of European collections. The old Italian schools are well represented in this gallery, and paintings of the older masters are numerous, including the "Raising of Lazarus," the joint production of Sebastiano del Piombo and Michael Angelo, Correggio's "Mercury and Venus" and "Ecce Homo," and various paintings by Raffael and other Italian masters. We meet, likewise, with the masterly productions of Velasquez, Murillo, Rembrandt, Rubens, and Vandyck, and with landscapes by Ruysdael and Hobbema. Two paintings by Turner have, by express desire of the artist, been placed side by side with two similar works by Claude Lorraine. Dulwich Gallery, near the Crystal Palace, contains valuable paintings by Murillo, Velasquez, and the Dutch masters. Very considerable, too, are the private collections in London, including those in Bridgewater House, in Devonshire House, Grosvenor House, and other princely mansions of the aristocracy.

South Kensington Museum possesses, next to the British Museum, the largest number of priceless art treasures. It was founded in 1851 as an aid towards the development of art industries, in which the English were confessedly behind some of their neighbours, as was clearly demonstrated by the Exhibition held in the year named. The museum includes quite an agglomeration of buildings, some of them of a provisional character; but a permanent edifice, in the purest style of Italian Renaissance, is rapidly approaching completion, and promises to become one of the great ornaments of London. The collections exhibited at South Kensington include an immense variety of objects, but owing to the provisional nature of a portion of the buildings, it has not yet been found possible to classify and arrange them in a thoroughly satisfactory manner. Nevertheless progress is being made, and now and then the eye alights upon a masterpiece which commands admiration, quite

* The expenditure of the Museum amounts to £110,000 per annum. It is visited annually by about 650,000 persons, of whom 115,000 make use of the reading-room for purposes of research, each reader, on an average, consulting 12 volumes daily. The library increases at the rate of 35,000 volumes a year.

irrespective of the locality assigned to it. Even Florence might envy South Kensington the possession of some of the best examples of Italian Renaissance,* most prominent amongst which are seven admirable cartoons by Raffael, which produce almost the effect of fresco paintings. In addition to the articles which are the property of the museum, there is exhibited at South Kensington a most valuable "loan collection," intrusted to the authorities by wealthy amateurs, in order that artists and the public may study its contents. Quite recently the museum has been enriched by the acquisition of the larger portion of the contents of the old India Museum. These are exhibited in a series of rooms overlooking the gardens of the Horticultural Society, and nowhere else in Europe is it possible to meet with a larger collection of objects illustrating the history and private life of the inhabitants of the Ganges peninsula. South Kensington is, indeed, becoming a "town of museums." The straggling galleries which surround the gardens of the society just named are filled with all kinds of objects, including huge cannons, ships' models, educational apparatus, portraits of eminent Englishmen, an anthropological collection, and maps. The new Natural History Museum occupies an adjoining site. It has recently received the precious mineralogical, geological, botanical, zoological, and anthropological collections of the British Museum, which are the delight of the student, and some of the objects in which—as, for instance, the fossilised Caraib found on Guadaloupe—are of priceless value. The Patent Office Museum adjoins the museum of South Kensington, and contains, in addition to numerous models, several objects, such as the earliest machines and engines constructed by Arkwright, Watt, and Stephenson, which no mechanician can behold without a feeling of veneration. Parliament has at all times shown favour to the museum in South Kensington, by willingly granting the large sums demanded on its behalf by Government. During the first years of its existence the Department of Science and Art was enabled to spend annually between £160,000 and £200,000 in enlarging its collections.† It is nevertheless to be regretted that a museum like this, which is at the same time a school of art and science, should have been located in one of the aristocratic suburbs of London, far from the centre of the town and the homes of the artisans who were primarily intended to profit by its establishment. In order to obviate this disadvantage, a branch museum has been opened in the industrial suburb of Bethnal Green, and, besides this, the art schools throughout the country are supplied with loan collections.

London is particularly rich in special museums, some of which have already been referred to. Amongst others which contribute most largely to the progress of science we may mention the Geological Museum in Jermyn Street, founded by De la Beche, and John Hunter's Anatomical Museum in the College of Surgeons,

* Perrot, *Revue des Deux-Mondes*, Mai 1, 1878.

† The Science and Art Department of South Kensington expends annually about £330,000, in addition to which £40,000 are voted for the maintenance of the museum, and a considerable sum (in 1879 £8,000) for buildings in course of construction. The expenses of the National Portrait Gallery and Patent Museum, though popularly supposed to form part of the South Kensington Museum, are defrayed from other sources.

Lincoln's Inn Fields. Several of the learned societies boast the possession of libraries and valuable scientific collections. The Royal Society, the Geological Society (the first of the kind founded), the Anthropological Institute, the Linnean Society, and more especially the Royal Geographical, which has taken the initiative in so many voyages of exploration—all these societies prosper, and have the command of revenues which enable them to increase their collections to the profit

Fig. 99.—KEW AND RICHMOND.

Scale 1 : 65,000.



of science.* The Zoological Society, installed in a portion of Regent's Park, owns the finest collection of living animals in the world, and attracts annually close upon a million visitors. There are Horticultural and Botanical Societies, both in the enjoyment of fine gardens, but they are far inferior to the Botanical Gardens at Kew, which are the richest of their kind in the world, and are maintained

* The Royal Geographical Society has nearly 4,000 members, and enjoys an annual income of £12,000.

with the greatest liberality. On Sunday afternoons the extensive pleasure grounds attached to them are crowded with visitors, happy to escape the *ennui* of the town. Three museums and numerous conservatories are scattered within its precincts. A winter garden, covering an area of an acre and a half, is intended to afford shelter to plants of the temperate regions. The palm stove rises to a height of 66 feet, and walking amongst the tropical plants which it contains, we might fancy ourselves transported into a virgin forest of the New World, if it were not for the roof of glass visible through the fan-shaped foliage above our heads. There are many private gardens in the vicinity of London, and more especially near Chiswick, which almost rival Kew in the extent of their conservatories and the luxuriance of their vegetation.

As to the Crystal Palace, which occupies an eminence to the south of London, in the midst of a vast garden 200 acres in extent, it is essentially a place of recreation. The building contains, no doubt, many beautiful imitations of works of architecture and art, but the character of the entertainments offered to the public shows only too plainly that amusement is the principal object aimed at. The same may be said of the Alexandra Palace, commanding a magnificent prospect of woods and meadows from its vantage-ground on Muswell Hill. Quite recently, after twenty-five years of litigation, the City of London has obtained possession of Epping Forest, an extensive tract of woodland to the north-east, which forms a most welcome addition to the public parks of the metropolis.

London, though it contains one-eighth of the total population of the British Isles, is not the seat of a university, like Oxford or Cambridge, or even Durham or St. Andrews. True, Sir Thomas Gresham, a wealthy London merchant, devised extensive estates, about the middle of the sixteenth century, for the purpose of endowing a school of learning; but this legacy, stated to be actually worth £3,000,000,* was wasted by its guardians, and supports now merely a College where lectures are occasionally delivered to miscellaneous audiences. The University of London is not a teaching corporation, but an examining body, which dispenses its degrees to any candidate who may present himself, without exacting any other conditions than his competency. But though the superior schools of London may not officially occupy the same rank as the colleges of Oxford and Cambridge, they nevertheless turn out excellent scholars, and devote more especially attention to experimental science and the exigencies of modern society. Medicine, almost completely neglected in the old universities, is one of those sciences which may most successfully be studied in London, where there are eleven medical schools connected with the public hospitals, in addition to University College and King's College. University College excludes religious instruction altogether, and Hindus, Parsees, and Jews sit side by side with their Christian fellow-students; whilst King's College bases its course of instruction upon the principles of the Church of England, interpreted in a spirit of liberality. Women have enjoyed the right of taking part in the course of education of University College since 1869, and may present themselves for examination

* *Times*, October 2nd, 1878.

before the authorities of the London University. Besides this, there are three colleges specially established for the higher education of women.

There are four great public schools for boys—Westminster, St. Paul's, Merchant Taylors', and Christ's Hospital; numerous middle-class schools, supported by corporations, societies, or endowments; and a multitude of elementary schools. These latter are in a great measure under the administration of a School Board elected by the ratepayers, and it will convey some notion of their importance if we state that they are attended by close upon half a million of pupils.*

If London, notwithstanding its many great schools, is not the university centre of England, and is bound to recognise the prerogatives of Oxford and Cambridge, it may at all events claim to be the scientific, literary, and art centre of all the countries where English is the common tongue. It publishes more books than any other town, is the seat of the most flourishing scientific societies, possesses the most valuable art collections and the most famous exhibition galleries, and its boards confer distinction upon the actors who appear upon them. The most valued reviews and journals, which may not only claim to be the "fourth estate" of the realm, but also sway public opinion throughout the world, are published in London. The newspaper printing-offices are amongst the most wonderful industrial establishments of the metropolis.

London does not hold the first place amongst the industrial centres of the British Isles. It is not the equal of Manchester, Birmingham, Sheffield, Leeds, or Glasgow in any special branch of manufacture. Yet, if the workshops and factories scattered through the various quarters of London could be combined to form a town by themselves, it would very soon become clear that in the totality of its manufactures the metropolis is still the first town of England, and that the name of Cockneys, contemptuously applied to all who live within the sound of Bow bells, has not been earned through a life of idleness. The majority of the factories lie within a huge semicircle, which bounds the City towards the east and south, and extends from Clerkenwell, through Spitalfields, Bethnal Green, Mile End, Rotherhithe, and Southwark, to Lambeth; but there is not a quarter of the town where workmen engaged in some useful occupation are not to be met with.† London is more especially noted for its pottery, cutlery,

* Population of school age, Christmas, 1878	729,710
Children in primary schools	444,322
Average daily attendance	350,507
Total expenditure of School Board, 1879	£470,543

† Occupations of the inhabitants of London (1871):—

	Males and Females.	Females only.
General and Local Government	31,952	1,591
Army and Navy	18,464	—
Learned Professions (Literature, Art, and Science)	96,096	37,781
Persons engaged in entertaining and performing personal offices for man	314,711	262,100
Persons who buy and sell, keep or lend money, houses, or goods	86,957	8,757
Conveyance of men, animals, goods, or messages	134,014	1,096
Agriculture	15,790	1,739
Persons engaged about animals	12,907	124
Industrial classes	725,695	220,923
Labourers, &c.	112,162	13,782

fire-arms, machinery of every description, watches, jewellery, and furniture. It builds and fits out vessels, though on a much-reduced scale since the introduction of iron steamers, which can be more economically produced in the northern ports. The silk industry, first introduced by French Huguenots towards the close of the seventeenth century, still keeps its ground. Tan-yards, sugar refineries, and distilleries are of great importance. The breweries are vast establishments, and the excise dues exacted from them considerably swell the receipts of the treasury. Nearly all of them have secured a supply of pure water by boring artesian wells, one of which descends a depth of 1,020 feet, to the beds of the lower greensand. A large proportion of the market gardens of all England lie in the vicinity of London, but they cannot compare with those to be seen around Paris.

As a money market London is without a rival in the world. Even France cannot dispose of savings equal to those which annually accumulate in England, which latter enjoys, in addition, the advantages accruing from the universal practice of banking. The City of London probably has at its immediate command a capital equal in amount to what could be furnished jointly by all the other money markets of the world, and this circumstance enables her, to the detriment of other countries, to take advantage of every opportunity for realising a profit that may present itself in any quarter of the globe.* The great bankers in Lombard Street, the worthy successors of those Lombards and Florentines who first initiated Englishmen into the mysteries of banking, are applied to by every Government in distress, by mining and railway companies, by inventors desirous of converting their ideas into ringing coin, by speculators of every description. There are but few Governments which, in addition to an official envoy accredited to the court of St. James, do not maintain a representative attached to the money-lenders in Lombard Street. Thanks to the information which flows into London as the centre of the world, the City capitalists are the first to learn where judicious investments can be made. Nearly every colonial enterprise is "financed" by London; the mines of South America are being worked indirectly on behalf of the bankers of the City, who have also constructed the railways and harbours of Brazil, the Argentine Confederation, and Chili; and it is the city which nearly all the submarine telegraph companies of the world have chosen as their head-quarters.

The first town of the world as a money market, London ranks foremost, too, as a place of commerce and a shipping port. It is the greatest mart in the universe for tea, coffee, and most kinds of colonial produce. The wool of Australia and Africa finds its way into its warehouses, and foreign purchasers are compelled to replenish their supplies there. A large quantity of merchandise only reaches continental Europe through the port of the Thames as an intermediary.†

* W. Bagehot, "Lombard Street."

† Foreign trade of London (Exports and Imports):—

1335	.	.	.	£333,160	1873	.	.	.	£184,759,500
1700	.	.	.	£10,000,000	1876	.	.	.	£186,700,000
1791	.	.	.	£31,000,000	1879	.	.	.	£146,741,000
1825	.	.	.	£42,803,145					

For further details on the Trade and Shipping of London we refer the reader to the Appendix.

The commerce which London carries on with foreign countries has increased twenty-fold since the beginning of the eighteenth century, and continues to increase with every decade. The Port of London is a world of which we can form no notion unless we enter it. In fact, legally no less than virtually, the whole estuary of the Thames belongs to it.* It is bounded on the east by an ideal line drawn from the North Foreland, near Margate, through the Gunfleet lightship to Harwich Naze. A few of the small ports embraced within these limits enjoy some local importance, but are nevertheless mere *enclaves* of the great port of London. They are outports established for the convenience of fishermen and traders, and may fairly be described as maritime suburbs of London. As we leave the Nore Light behind us and journey up to London, the number of vessels increases rapidly. Not a group of houses on the bank but a cluster of vessels may be seen at anchor in front of it, nor a jetty but its head is surrounded by shipping engaged in discharging or receiving cargo. Above Sheerness the banks approach each other, and higher up we find ourselves upon a river lined for miles by quays, where cranes are steadily at work hoisting grain from the holds of ships into granaries. At times we are hardly able to distinguish the houses along the banks, so closely packed is the shipping, and at frequent intervals long rows of masts may be seen stretching away inland until lost to sight in the distance. These rows mark the sites of docks.

Towards the close of last century the quay at which it was legally permitted to discharge certain kinds of merchandise only extended from the Tower to Billingsgate, a distance of 1,450 feet. There were "tolerated" quays beyond these narrow limits; but the conveniences for landing merchandise were of so insufficient a nature as to constantly interfere with the conduct of commerce. It was difficult, moreover, to bring order into piles of merchandise deposited upon the quay, and the losses sustained by pillage were estimated to amount annually to nearly half a million sterling. Most of the vessels were detained in the port for weeks and months, and were able only to discharge cargo by means of lighters communicating with the shore.

Such a state of affairs could be permitted to exist no longer, more especially since the wars of the French Revolution and the Empire had enabled London to become the intermediary of nearly all the trade which was carried on between continental Europe and the New World. The merchants of London resolved upon following the example set by Liverpool, which already had docks surrounded by warehouses, and able to accommodate not only ships, but also their cargoes. After a tedious discussion in Parliament, a Joint-Stock Company was founded for the purpose of providing London with its first docks. The site selected lay at the neck of the peninsula known as the Isle of Dogs, half-way between London and Blackwall. Pitt, in 1800, laid the foundation stone. The site was well chosen, for vessels drawing 24 feet of water were able to enter the new docks, without first being obliged to make the circuit of the peninsula. The great success of these docks demonstrated the necessity of constructing others. These

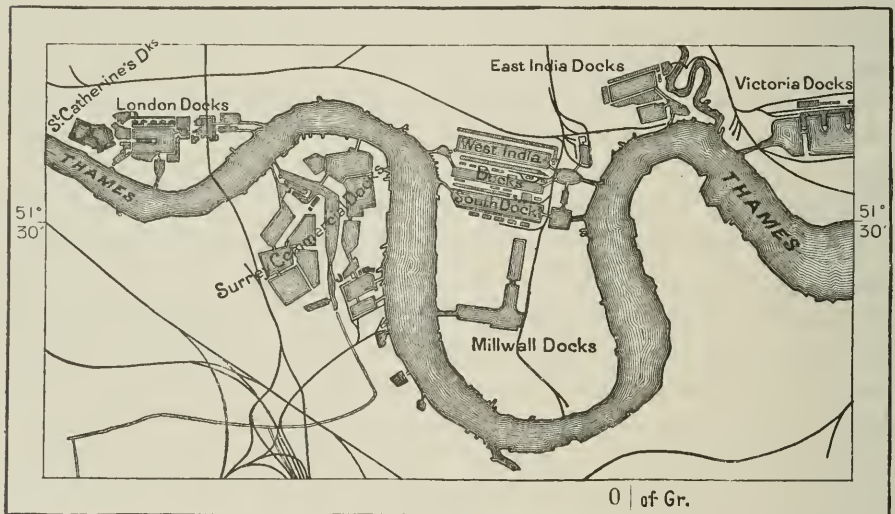
* "De jure maritimo et navali," 1677.

West India Docks had no sooner been completed than the East India Docks, originally reserved to Indiamen, but now open to all vessels, were taken in hand. Next followed the London Docks, still more important on account of their proximity to the City and the vastness of their warehouses, more especially designed for the storage of rice, tobacco, wine, and spirits. After these were constructed the St Katherine Docks, on the same bank of the river, and even nearer to the City than the preceding. In proportion to their size they are the busiest docks of London. In order to obtain the site they cover it was necessary to pull down 1,250 houses, inhabited by nearly 12,000 persons.

Since then works more considerable still have been carried out. The Victoria Docks, below the river Lea, only recently completed, cover an area

Fig. 100.—THE DOCKS OF LONDON.

Scale 1 : 65,500.



of no less than 180 acres, and there is reason to believe that they will be able, for some time to come, to meet the growing requirements of commerce. All the docks hitherto mentioned are on the left bank of the river, but though the right bank near London is of inferior importance, owing to its remoteness from the City, it, too, has been furnished with docks for the storage of timber and corn. Lower down, the right bank enjoys a commercial preponderance, for on it rise Deptford, with its huge foreign cattle market, Greenwich, Woolwich, Gravesend, Sheerness, and other towns.

The Docks of London do not at first sight strike the beholder as much as would be expected, for they are scattered throughout the meanest quarters of the town, and dwarfed by the tall warehouses which surround them. If we would gain a true idea of the prodigious commerce carried on within them, we must be prepared to spend days, nay, weeks, within their limits, travelling from warehouse to ware-

house, from basin to basin, inspecting interminable rows of vessels of every size and description, examining the piles of merchandise imported from every quarter of the globe, and watching the loading and unloading of vessels. Liverpool surpasses the capital in the value of its foreign exports, but lags far behind it as a port for the importation of wine, sugar, and colonial goods of every description. Altogether London is still the superior of Liverpool, even though the shipping belonging to its port be of somewhat inferior tonnage.

London, outside the City, is not in the enjoyment of municipal institutions, no doubt because Parliament dreads creating a rival which might overshadow it. Commercial and financial interests have their natural centres there, but not political ones. For purposes of local government London is divided into a multitude of districts, which in many instances overlap each other. So great are the confusion and intricacy of these administrative jurisdictions that but few Londoners take the trouble to penetrate their mystery, and are content to pay the rates and taxes on condition of being troubled no further. The legislature has handed London over to the tender mercies of powerful gas, water, and railway companies, and given life to not a single local representative body strong and powerful enough to assert the claims of the ratepayers. As recently as 1855 London was governed by 300 distinct local bodies, counting 10,448 members, and exercising their authority by virtue of 250 Acts of Parliament.* The City, which alone enjoys municipal institutions, forms virtually a town within the town, whilst the remainder of the metropolis is governed by 38 Local Boards or Vestries, 30 Boards of Guardians for the administration of the Poor Laws, a Metropolitan Board of Works, a School Board, and several other bodies, wholly or in part elected by the ratepayers. Even the Dean and Chapter of Westminster still exercise a few remnants of their old municipal functions. These various bodies count no less than 8,073 members, supported by an army of local officials. But notwithstanding this strange complication of the official machinery, and the financial confusion necessarily resulting from it, London spends less money than Paris, and is burdened with a smaller debt, which is partly accounted for by the fact that most of the great public works have been carried out by private companies, and not by the town.† The Metropolitan Police force‡ is under the orders of the Home Secretary, but the City authorities maintain a police of their own.§

The Metropolitan Board of Works, whose 44 members are elected by the Corporation of the City of London, and by 38 parishes or local districts, is the most important of these local governing bodies. It has charge of the main

* Firth, "Municipal London;" Dexter, "The Government of London;" Ravenstein, "London."

† In 1875 the local authorities of the metropolis, including the City, expended £9,071,000, or £2 15s. 9d. per head of the population. Of this sum municipal and sanitary objects absorbed £6,397,000, the maintenance of the poor £1,723,000, and public education £895,000. The total debt amounted to £22,688,000 (Captain Craigie, *Journal of the Statistical Society*, 1877). In 1878 the Metropolitan Board alone spent £3,680,000, and had a debt of £10,310,000, whilst the School Board spent £1,189,713.

‡ 10,900 officers and men. In 1879 83,914 persons were arrested, of whom 33,892 were drunk or disorderly; 14,562 were charged with burglary, robbery, &c.; and 10,856 with assaults.

§ 825 officers and men.

drainage, the formation of new streets, the supervision of the gas and water supply, the fire brigade,* and the public parks and gardens. But, however great its influence, it is overshadowed by the powerful corporation which has its seat in the City. In 1835, when the municipalities of the kingdom were reformed, the City of London was the only place of importance exempted from the operation of that Act, and it continues to enjoy, up to the present day, its ancient privileges and immunities. Old English customs are preserved there to an extent not known elsewhere, except, perhaps, in the decayed municipal boroughs whose maladministration has only recently been exposed in Parliament. The City is divided into 26 wards, and these into 207 precincts, the latter consisting sometimes of a single street. The inhabitants of each precinct, whether citizens or not, meet annually a few days before St. Thomas's Day, when the affairs of the precinct are discussed, and the roll of candidates for election as common councilmen and inquestmen is made up. The "Wardmote" meets on St. Thomas's Day for the election of a common councilman, and of other officials, including the inquestmen charged with the inspection of weights and measures and the removal of nuisances. At this meeting only freemen of the City, who are also on the parliamentary voters' list, have a right to vote. On the Monday after Twelfth Day the inquestmen of the wards attend before the Court of Aldermen sitting at the Guildhall, when the common councilmen chosen are presented. The wardmote likewise elects the aldermen, but for life, and these, jointly with the common councilmen, form the Court of Common Council, which thus consists of 233 members, 26 of whom are aldermen. The Lord Mayor, whose election takes place annually on the 29th of September, presides over the Courts of Aldermen and of Common Council, as well as over the "Common Hall" of the Livery. As a rule the senior alderman who has not served the office is chosen Lord Mayor, the privilege of nomination being vested in the Common Hall, that of election in the Court of Aldermen, and the same person generally holds the office only once for one year. The election is formally approved by the Lord Chancellor on behalf of the Crown. On the 8th of November the Lord Mayor elect is sworn in before the Court of Aldermen, and invested with the insignia of his office, and on the day after, "Lord Mayor's Day," he proceeds in state to the High Court of Justice, where he takes the oath of allegiance. On his return to the City the procession is joined by the Judges, her Majesty's Ministers, the foreign ambassadors, and other distinguished persons, to be entertained at a magnificent banquet at the Guildhall, the expenses of which are borne jointly by the Lord Mayor and the two Sheriffs. The Lord Mayor holds the first place in the City next to the sovereign; he is, *ex officio*, a member of the Privy Council, a Judge of the Central Criminal Court, a Justice of the Peace in the metropolitan counties, Lord-Lieutenant and Admiral of the Port of London, and Conservator of the Thames. In order to assist him in keeping up the traditional reputation of the City for hospitality, he is allowed an annual stipend of £10,000.

* 505 men, with 4 floating fire-engines on the Thames, 32 steam-engines, 112 manual engines, and 129 fire-escapes. Between 1,600 and 1,700 fires break out annually, but of these less than 200 are described as "serious."

The two Sheriffs are elected by the Livery on Midsummer Day, and their office, though one of distinction, is costly, for, like their chief, they are expected to give annually a number of dinners. The Recorder of London is the chief City judge and official "orator;" the Common Serjeant presides in the City of London Court; an Assistant Judge in the Lord Mayor's Court. A Chamberlain acts as City Treasurer.

Most of the great companies date from the thirteenth or fourteenth century, though they spring, no doubt, from the guilds of Saxon times. Originally they were associations of persons carrying on the same trade; but they are so no longer, and only the Apothecaries, the Goldsmiths, the Gunmakers, and the Stationers are still charged with the exercise of certain functions connected with the trade they profess to represent. Out of a total of 79 companies, 73 enjoy the distinction of being "Livery Companies;" that is, the liverymen belonging to them are members of the Common Hall. An order of precedence is rigidly enforced by these companies, at the head of which march the Mercers, Grocers, Drapers, Fishmongers, Goldsmiths, Skinners, Merchant Taylors, Haberdashers, Salters, Ironmongers, Vintners, and Clothworkers. Much has been fabled about the enormous income of these companies, and there can be no doubt that they expend large sums in feasting. It must be said to their credit, at the same time, that all of them support charitable institutions, that several amongst them maintain excellent schools, and that if they do feast, they do so at their own expense.

SURREY.—A large portion of this county, with three-fourths of its inhabitants, is included in the metropolis, and nearly the whole of the remainder of its population is more or less dependent upon London for its existence. The surface of the county, with its alternation of hill and dale, is beautifully diversified. The chalk range of the Downs intersects it through its entire length, forming a bold escarpment towards the fertile valley of the Thames, and merging to the southward into the Weald, not yet altogether deprived of the woods for which it was famous in former times. The Thames bounds the county on the north, and the tributaries which it receives within its limits, including the Wey, Mole, and Wandle, rise to the south of the Downs, through natural gaps in which they take their course to the northward. The views commanded from the Downs and from the hills in the Weald are amongst the most charming in the neighbourhood of London, that from Leith Hill extending over a wild woodland scenery to the English Channel, whilst Box Hill, near Dorking, possesses features of a more cultivated cast. The Downs are likewise of some strategical importance with reference to the metropolis, to the south of which they form a natural rampart. In the case of an invasion it is believed by military men that the fate of London will depend upon the results of a battle to be fought in the neighbourhood of the "passes" which lead through them at Reigate and Dorking, and propositions have been freely made to enhance their natural strength by a chain of detached forts. Considerable portions of Surrey consist of barren heaths and

moorish tracts, but the greater part of the county is devoted to agriculture and market gardening. Hops are amongst its most appreciated productions. The manufacturing industry, excepting within the limits of London, is but of small importance.

The river Wey, which pays its tribute to the Thames below Weybridge, rises in Wiltshire, and soon after it has entered Surrey flows past the ancient town of *Farnham*, which boasts a stately moated castle, the residence of the Bishops of Winchester, and carries on a brisk trade in hops and malt. The height to the north of that town is occupied by the camp of Aldershot, whilst below it the Wey passes Moor Park, where Dean Swift wrote his "Tale of a Tub" and made love to Stella, Lady Giffard's waiting-maid. Here also are the beautiful ruins of Waverley Abbey. Between Farnham and Guildford the fertile valley of the Wey is bounded on the north by the "Hog's Back," a link of the Downs. The river first becomes navigable at *Godalming*, which retains some portion of the stocking manufacture for which it was formerly celebrated, and has recently acquired fresh importance through the transfer to it of Charterhouse School from London. Below this town the Wey escapes through a cleft in the Downs. This cleft is commanded by the town of *Guildford*, whose antiquity is attested by a Norman castle, a grammar school dating from the time of Henry VIII., and an interesting old church. Guildford has an important corn market, and possesses large breweries. In the beauty of its environs few towns can rival it, clumps of trees, carefully kept fields, ivy-clad walls, and shady lanes winding up the hillsides, combining to form a picture of rural beauty and tranquillity. Only a short distance to the north of the town we enter a heathy district in the vicinity of *Woking*. Before leaving this south-western portion of the county there remains to be noticed the small town of *Haslemere*, close to the Hampshire border, which manufactures walking-sticks and turnery.

Dorking, 10 miles to the east of Guildford, commands another gap in the northern Downs, and is seated amidst much-admired scenery. Near it are Deepdene, the seat of Mrs. Hope, full of art treasures, and the "Rookery," where Malthus was born in 1776. Dorking is noted for its fowls. The Mole, which flows near the town, derives its name from a chain of "swallows" into which it disappears at intervals. It runs past *Leatherhead* and *Cobham*, and enters the Thames at *Molesey*, opposite Hampton Court Palace.

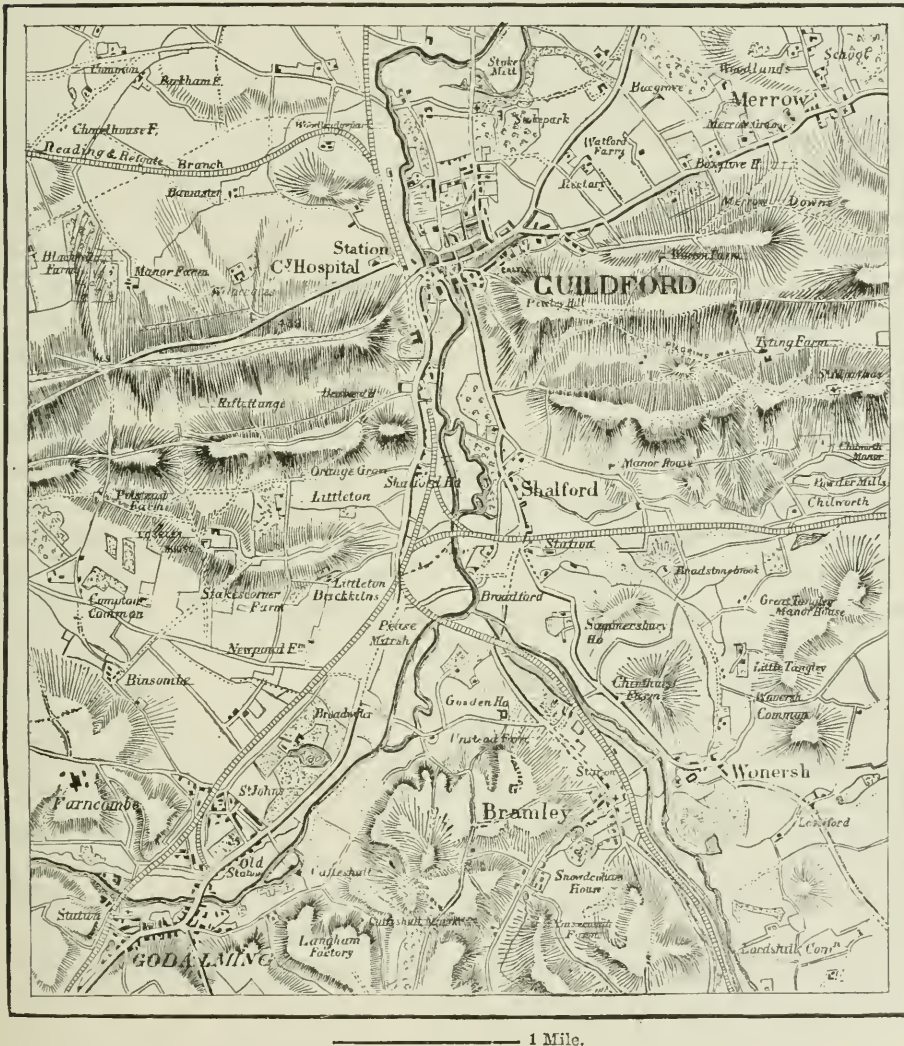
Reigate, near a third gap in the Downs, which here bound the lovely Holmsdale on the north, has deservedly grown into favour with London merchants as a place of residence. Near its suburb *Redhill* are an Asylum for Idiots and the Reformatory of the Philanthropic Society. Fuller's earth is dug in the neighbourhood.

Epsom, in a depression on the northern slopes of the Downs, was a resort of fashion in the seventeenth century, when its medicinal springs attracted numerous visitors. The famous racecourse lies on the Downs to the south of the town, and not less than 100,000 persons have assembled on it on Derby Day. *Ewell*, a small village near Epsom, has powder-mills. Near it is Nonsuch Park, with a castellated mansion, close to the site of an ancient palace of King Henry VIII.

All the other towns and villages of Surrey are hardly more than suburbs of the great metropolis. Foremost amongst them in population is *Croydon*, an ancient town, with the ruins of a palace of the Archbishop of Canterbury (who now usually resides in the neighbouring Addington Park), an ancient grammar school, and an old church recently restored. The Wandle, which flows past Croydon,

Fig. 101.—GUILDFORD AND GODALMING.

Scale 1 : 63,000.



affords some good fishing, and in its lower course sets in motion the wheels of the paper and rice mills of *Wandsworth*, a south-western suburb of London. Other suburbs are *Norwood*, *Mitcham*, *Tooting*, and *Wimbledon*, on the edge of an open gorse-covered heath, upon which the National Rifle Association holds its annual gatherings. Amongst the towns and villages seated on the banks of the Thames,

those of *Putney*, *Kew*, *Richmond*, and *Kingston* (with *Surbiton*) are of world-wide renown. The park near *Richmond* is nearly 9 miles in circumference, its sylvan scenery is of extreme beauty, and many fine distant views are commanded from it. Higher up on the *Thames* are *Molesey*, *Walton*, *Weybridge*, *Chertsey*, and *Egham*.

KENT, a maritime county, stretching from the Lower *Thames* to the English Channel, is of varied aspect, and the beauty of its scenery, joined to the variety and nature of its productions, fairly entitles it to the epithet of "The Garden of England," aspired to by several of the other counties. The chalky range of the northern Downs traverses the county from the borders of *Surrey* to the east coast, where it terminates in bold cliffs, perpetually undermined by the sea. These Downs are cleft by the valleys of the rivers which flow northward to the *Thames*, or into the sea, and amongst which the *Darent*, the *Medway*, and the *Stour* are the most important. The country to the north of the Downs consists of gravel and sand overlying the chalk, but *Shooter's Hill* (446 feet), near *Woolwich*, is an insulated mass of clay. The fertile *Holmsdale* stretches along the interior scarpment of the Downs, and separates them from a parallel range of chalk marl and greensand, which marks the northern limit of the *Weald*, within which nearly all the rivers of the county have their source. Extensive marshes occur along the *Thames*, on the isles of *Grain* and *Sheppey*, along the estuary of the *Medway*, in the tract which separates the *Isle of Thanet* from the bulk of the county, and on the Channel side, where *Romney Marsh*, famous for its cattle and sheep, occupies a vast area.

The agricultural productions of Kent are most varied. More hops are grown there than in any other part of England, and vast quantities of cherries, apples, strawberries, and vegetables annually find their way to the London market. Poultry of every sort is large and fine; the rivers abound in fish; while the native oysters bred in the *Swale*, an arm of the sea which separates the *Isle of Sheppey* from the mainland, are most highly appreciated for their delicate flavour.

Kent, owing to its proximity to the continent, was the earliest civilised portion of England, but is now far surpassed in wealth and population by other counties. It has nevertheless retained some of its ancient customs and privileges, secured through the stout resistance which the yeomanry to the west of the *Medway* opposed to the victorious march of the Conqueror. Ever since that time the inhabitants of the western part of the county have been known as "Men of Kent," those of the eastern division as "Kentish men." Most remarkable amongst these privileges is the tenure of land known as "gavelkind," in virtue of which an estate descends to all the sons in equal proportions, unless there be a testamentary disposition to the contrary.

The north-westernmost corner of Kent, including the large towns of *Deptford*, *Greenwich*, and *Woolwich*, lies within the limits of the metropolis. The famous dockyard of *Deptford*, whence Sir Francis Drake started upon his voyages of adventure, was closed in 1872, and most of its buildings are utilised as cattle-sheds, sheep-pens, and slaughter-houses, for it is here that all foreign cattle must be landed and slaughtered, in order that infectious diseases may not gain a footing in the country through their dispersion. The *Ravensbourne*, a small river which

rises in Cæsar's Well near Keston, flows past the old market town of *Bromley*, drives the mill-wheels of *Lewisham*, and separates Deptford from Greenwich. *Greenwich* is celebrated for its Hospital, consisting of four blocks of buildings erected from designs by Sir Christopher Wren. The invalided sailors for whom this great work was erected know it no longer, they being paid a pension instead of being lodged and boarded, and their place is now occupied by the Royal Naval College and a Naval Museum. The old refectory, or hall, a magnificent apartment of noble proportions, is used as a gallery of pictures illustrating England's naval glories. On a verdant hill which rises in the centre of Greenwich Park, laid out by Le Nôtre, there stands an unpretending building. This is the Royal Observatory, rendered famous by the labours of Flamsteed, Halley, Bradley, and Maskelyne, who have found a worthy successor in the present Astronomer-Royal. This Observatory is fitted out with the most costly instruments. The initial meridian almost universally accepted by mariners throughout the world passes through the equatorial cupola forming its roof. Strange to relate, the exact difference in longitude between Greenwich and Paris is not yet known. It probably amounts to $2^{\circ} 20' 15''$,* but authorities differ to the extent of 400 feet.

To Greenwich succeeds *Woolwich*, which owes its growth to its great Arsenal, its barracks, Military Academy, and other establishments. The Arsenal covers a very large area, and is a great repository and storehouse, no less than a manufactory, of guns, carriages, and warlike materials of every kind, not infrequently employing 10,000 workpeople. The dockyard was closed in 1869, and is now used for stores. North Woolwich is on the left bank of the river. Shooter's Hill, to the south of Woolwich Common, is famous for its views of London and the valley of the Thames. *Charlton*, *Blackheath*, and *Lee* are populous places between Woolwich and Greenwich, with numerous villa residences. *Chislehurst*, a few miles to the south, beautifully situated on a broad common surrounded by lofty trees, contains Camden House, once the residence of the antiquary after whom it is named. Napoleon III. retired to this house, and died there an exile.

Descending the Thames below Woolwich, we pass village after village along the Kentish shore, whilst the flat shore of Essex is but thinly peopled. Immediately below Plumstead Marshes, on which some factories have been established, we arrive at the pretty village of *Erith*, close to the river bank, with extensive ballast pits and iron works in its rear. *Dartford*, a flourishing place, where paper-making and the manufacture of gunpowder are extensively carried on, lies on the river Darent, a short distance above its outfall into the Thames. Other paper-mills are to be met with at *St. Mary's Cray*, on the Cray, which joins the Darent at Dartford. We next pass *Greenhithe*, near which, at the Swine's Camp, (now Swanscombe), the men of Kent, led on by Stigand and Egheltig, offered such stout resistance to William the Conqueror. *Northfleet*, with its chalk quarries, comes next, and then we reach *Gravesend*, a shipping port of some importance, situated at the foot of gentle hills. The fisheries furnish the chief employment of the seafaring population, and most of the shrimps consumed in London are sent

* Hilgard, "United States Coast Survey, Report for 1874."

up from Gravesend. Amongst the many seats in the neighbourhood of this town, Cobham Hall, in the midst of a magnificent park almost extending to the Medway, is the most important. The pleasure grounds of *Rosherville* lie at the upper end of the town. A ferry connects Gravesend with Tilbury Fort, on the northern bank of the river, where Queen Elizabeth in 1588 mustered the forces which were to resist the expected invasion of the Spanish Armada. Tilbury, with other formidable works of defence on both banks of the river, disposes of means of destruction which would frustrate any hostile effort to reach London by way of the Thames.

Sevenoaks, in the fruitful tract known as the Holmsdale, in the western part of the county, is famed for the beauty of its surrounding scenery. *Knole*, one of the most interesting baronial mansions, adjoins the town, whilst *Chevening*, full of interest on account of its historical associations, with a park extending up to the far-seen Knockholt beeches, lies 4 miles to the north-west. *Westerham*, to the west of Sevenoaks, near the source of the Darent, and *Wrotham*, to the north-east, at the southern escarpment of the Downs, are both interesting old market towns.

The Medway, which flows through a region abounding in picturesque scenery, rises close to the famous old watering-place of *Tunbridge Wells*, which owes more to its bracing air than to the medicinal virtues of its hot chalybeate springs. In the time of Charles II. the visitors to this place were lodged in small cabins placed upon wheels, and the first church was only built in 1658. The neighbourhood abounds in delightful walks, and country seats are numerous. *Penshurst*, a quaint old village, rises on the Medway, 7 miles to the north-east of the Wells. Near it is Penshurst Place, which Edward VI. bestowed upon his valiant standard-bearer, Sir William Sidney, amongst whose descendants were Sir Philip, the author of "*Arcadia*," and Algernon Sidney, whose head fell on the block in 1683. The Eden joins the Medway at Penshurst. A short distance above the junction stands *Hever Castle*, the birthplace of the unfortunate Anne Boleyn.

Tunbridge, at the head of the navigation of the Medway, is a town of considerable antiquity, with the remains of a castle (thirteenth century), a grammar school founded in 1553, and several timbered houses. Wooden articles known as Tunbridge-ware are made here, and hops are grown in the neighbourhood. The centre of the Kentish hop gardens, however, is *Maidstone*, lower down on the Medway, an interesting old town, with many gabled houses and other ancient buildings. In 1567 French refugees introduced the linen industry into Maidstone, but that town is at present noted only for its hop trade. Annually during the "picking season" thousands of labourers from London invade it and the surrounding villages.

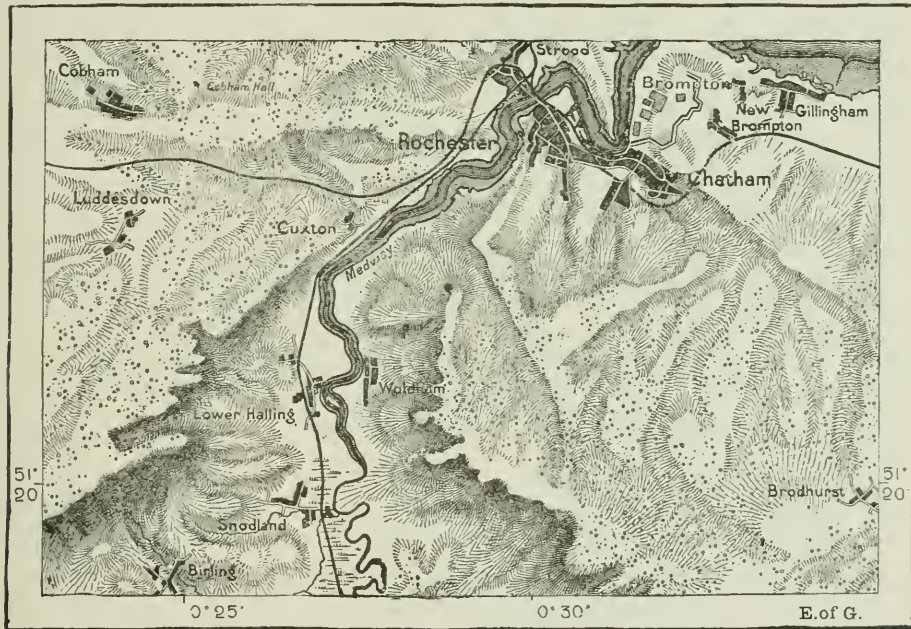
Maidstone is the assize town of the county, but yields in population to the triple town formed by *Rochester*, *Strood*, and *Chatham*, on the estuary of the Medway. Rochester is the oldest of these three. It is the *Dubris* of the ancient Britons, the *Durobrivæ* of the Romans, the *Roffſceaster* of the Saxons. Close to the river rises the massive keep of the Norman castle erected in the time of William the Conqueror by Bishop Gundulph, the same who built the Tower

of London, as also the cathedral of Rochester. Chatham is a naval and military town. Its dockyard is the largest in the kingdom, next to that of Portsmouth, and has been constructed in a great measure by convict labour. Extensive lines of fortifications and detached forts envelop the three towns, and no second De Ruyter would now dare to sail up the Medway and carry off the vessels sheltered by its fortifications.

Not the least formidable of these have been erected at the mouth of the Medway, 10 miles below Chatham, on the isles of Grain and Sheppey. The former is in reality only a peninsula, whilst the latter is separated from the rest of the county by a shallow arm of the sea, known as the Swale. *Sheerness* occupies the north-west point of the island, and its guns command the entrances

Fig. 102.—ROCHESTER AND CHATHAM.

Scale 1 : 250,000.



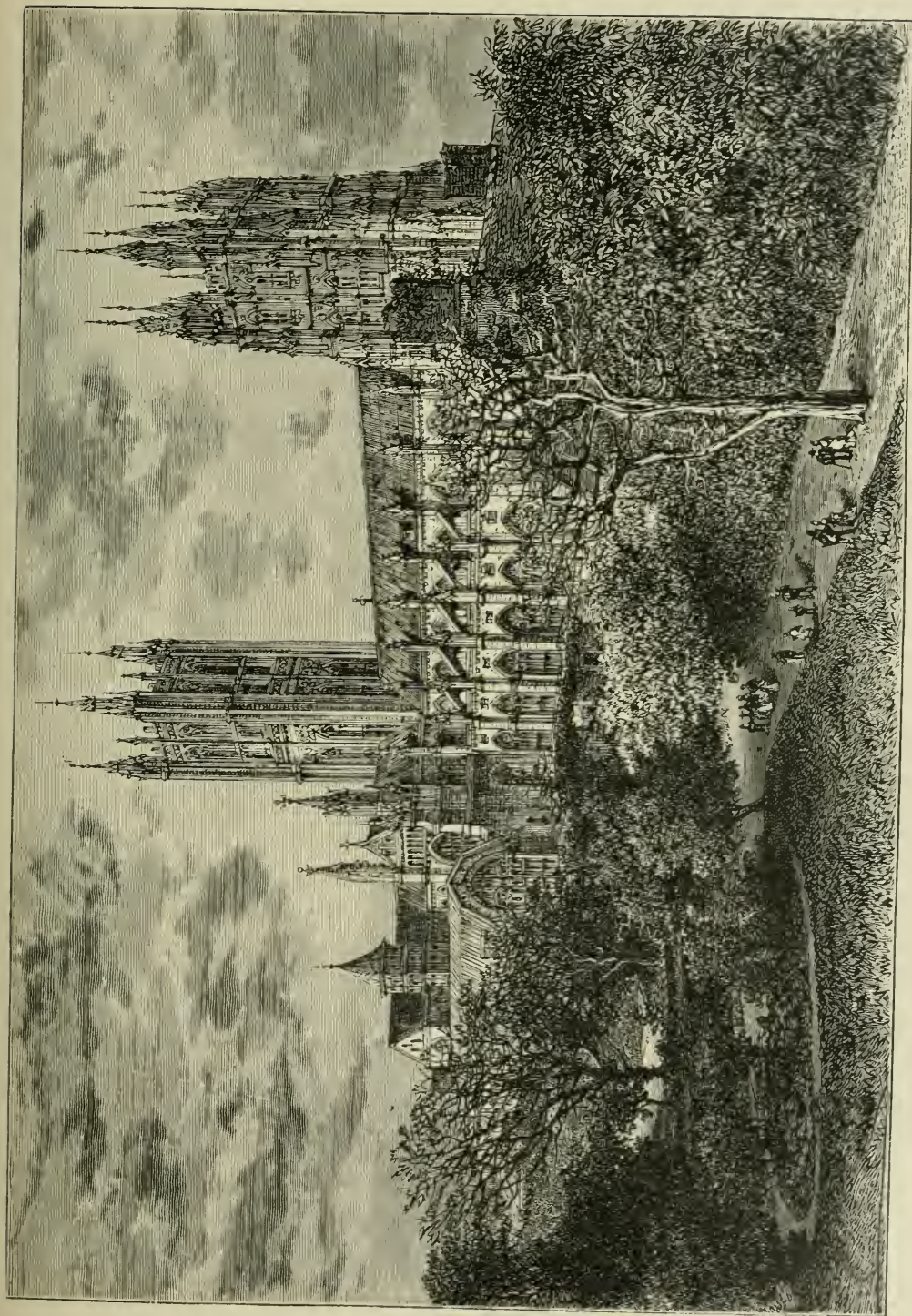
— 2 Miles.

of both the Thames and the Medway. The site of the town, a quaking swamp, which had to be solidified by piles before houses could be built upon it, is by no means healthy by nature, but by planting pines the sanitary conditions of the town and its neighbourhood have been much improved. *Queenborough*, close to *Sheerness*, has recently come into notice as the point whence a mail-steamer daily departs for *Flushing*. The stream of passengers, however, flows past this ancient town without leaving any mark upon it. At *Sittingbourne* the train which conveys them to London joins the main line from *Dover*. *Sittingbourne*, and its neighbour *Milton*, the latter at the head of a small creek, have paper-mills, breweries, brick-kilns, and malting-houses. *Faversham*, at the head of another creek, like that of *Milton* tributary to the *Swale*, has paper-mills, brick-kilns,

gun-cotton and gunpowder works, and oyster beds. It is the shipping port of Canterbury, and a place of considerable antiquity, with an old abbey church of great size and beauty. *Whitstable*, another shipping port of Canterbury, lies farther to the east, and is principally noticeable for its oyster beds. The owners of the oyster fisheries here have formed a co-operative association, which divides the produce of the fisheries amongst its members.

The northern coast of Kent, and more especially the Isle of Thanet, presenting its bold cliffs towards the German Ocean, abounds in watering-places much frequented by London pleasure-seekers. *Herne Bay*, though of recent origin, is rapidly rising into importance. A few miles to the east of it the towers of Reculver Church form a prominent landmark (see p. 151). *Margate*, on the northern coast of the Isle of Thanet, is one of the most popular watering-places in the neighbourhood of London. Doubling the North Foreland, with its far-seen lighthouse, we pass *Broadstairs*, a quiet place, with excellent sands for bathing, and reach *Ramsgate*, a town which is almost as much frequented as Margate, and which has an excellent harbour. Pegwell Bay, which adjoins it on the south, is noted for its shrimps.

The river Stour is tributary at present to the bay just named, but formerly flowed into the arm of the sea which separated the Isle of Thanet from the mainland. *Sandwich*, a very interesting old town, with many curious buildings, stands on the alluvial tract through which the Stour takes its winding course. Formerly it was a place of very considerable importance, ranking next to Hastings amongst the Cinque Ports, but the alluvial soil washed down by the river has silted up the "Haven," and the sea lies now at a distance of 2 miles. A short distance to the north of it rise the ruins of the Roman castle of *Rutupiæ* (Richborough), perhaps the most striking relic of old Rome existing in Britain. Near its head the Stour flows past *Ashford*, where there are the extensive railway works of the South-Eastern Company; but the largest town within its basin, and historically the most interesting of all Kent, is *Canterbury*, the *Durovernum* of the Romans. Canterbury is perhaps the oldest seat of Christianity in England, and the venerable church of St. Martin's, with its ivy-clad tower, partly constructed of Roman bricks, has been styled the "mother church of England," and dates back to pre-Saxon times. Since the days of St. Augustine, Canterbury has been the seat of the Primate of all England, though at present the Archbishop's principal residence is Lambeth Palace in London. Churches and ecclesiastical buildings of every kind abound in Canterbury, and constitute its individuality. The bold mass of the cathedral towers above all. Founded in 1070, but destroyed by fire in 1174, the vast edifice has been almost completely rebuilt since the latter year. The church, as it were "a cathedral within a cathedral," is the work of William of Sens (1174—1182), and the oldest example of the pointed style in England. The choir is rich in precious monuments, including that of Edward the Black Prince. The shrine of Thomas à Becket, who was slain at the foot of the altar by order of Henry II. for braving the royal authority (1170), was a goal which attracted pilgrims from all parts of the world, and Canterbury grew rich on the offerings of



CANTERBURY CATHEDRAL.

all Christendom. Canterbury no longer holds its ancient rank as a place of commerce and industry, notwithstanding the navigable river upon which it stands, and the five railways which converge upon it. As a wool and hop market it is still of some importance, but the industries introduced by French or Flemish refugees in the sixteenth century have ceased to be carried on, and the population diminishes. But notwithstanding this, Canterbury, with its many churches and ancient walls, now converted into public walks, remains one of the most interesting and picturesque towns of England.

The smiling town of *Deal* rises on the east coast of Kent, opposite the dreaded Goodwin Sands, and is separated from them by the roadstead of the Downs. The boatmen of Deal are renowned for their daring, and only too frequently are their services called into requisition by vessels in distress. Of the three castles which Henry VIII. built for the defence of the town, that of Sandown was pulled down in 1862, owing to the inroads made by the sea, that of Deal is now in private occupation, whilst Walmer Castle continues the official residence of the Lord Warden of the Cinque Ports—an honorary office, held in succession by some of the most distinguished men of the kingdom. The great Duke of Wellington died in this castle in 1852.

Dover, which retains in French its ancient Celtic appellation of *Douvres*, occupies a commanding position directly opposite to the cliffs rising along the coast of France. It is one of those towns which, notwithstanding historical vicissitudes, the shifting of sandbanks, and the changes of currents, are able to maintain their rank as places of commerce. Its port, at the mouth of the Dour, which enters the sea between steep cliffs, offers the greatest facilities to vessels crossing the strait. Dover is the only one of the Cinque Ports which has not merely retained its traffic, but increased it, and this is exclusively due to the mail-steamers which several times daily place it in communication with Calais and Ostend.* Dover Harbour scarcely suffices for the many vessels which fly to it during stress of weather, and proposals for its enlargement are under discussion. The Admiralty Pier is a noble work, extending 700 feet into the sea. It is composed of enormous rectangular blocks, formed into a wall rising perpendicularly from the sea. A vertical pier like this is exposed to all the fury of the waves lashed by a storm, but the recoiling waves enable vessels to keep at a safe distance. A powerful fort has been erected at the termination of the pier; for Dover is a fortress, no less than a place of trade. A picturesque castle occupies a commanding site to the north. It consists of structures of many different ages, including even a Roman *pharos*, or watch-tower. Other heights, crowned with batteries and forts, command the castle. Only a short distance to the north of Dover, near St. Margaret's Bay and the South Foreland, preliminary works, with a view to the construction of a railway tunnel between France and England, have been carried out. It can no longer be doubted that this great work is capable of realisation. The rocks through which the tunnel is to pass are regularly bedded, and without

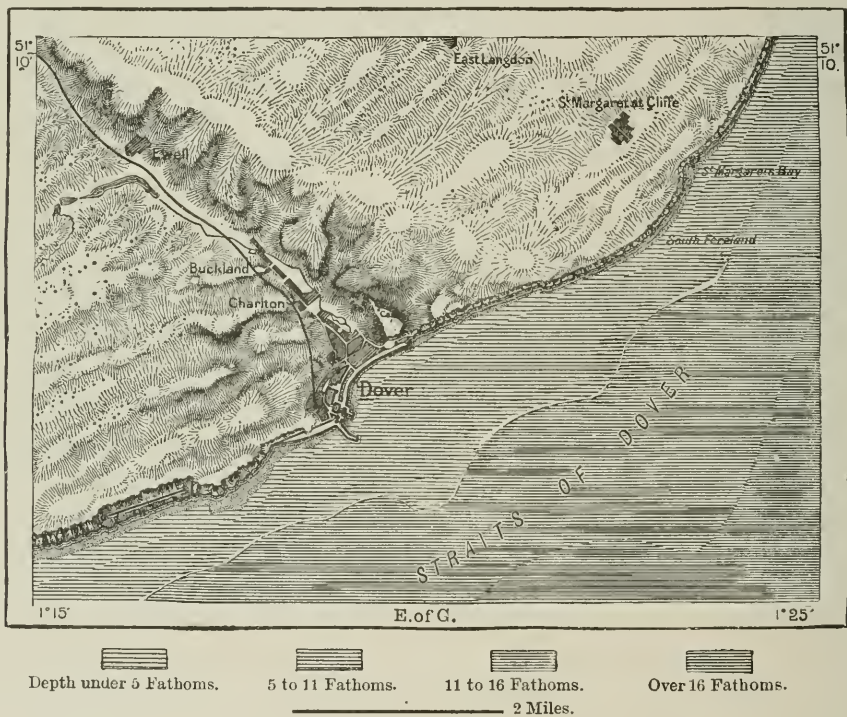
* Over 180,000 passengers annually cross from Dover to Calais, as compared with 135,000 who go from Folkestone to Boulogne.

"faults." Will our generation, fully occupied in wars and armaments, leave the honour of once more joining England to the continent to the twentieth century?

Folkestone, under the shelter of a chalky range known as the "backbone" of Kent, possesses advantages superior to those of Dover as a watering-place, but ranks far behind it as a place of commerce. Its trade with Boulogne is, nevertheless, of considerable importance, and its fine harbour affords excellent accommodation to mail-steamers and smaller craft. Folkestone was the birthplace of Harvey, the discoverer of the circulation of the blood, whose memory has been honoured by the foundation of a scientific institution. Walking along the top of the cliffs which extend to the west of Folkestone, we pass the pretty village of *Sandgate* and

Fig. 103.—DOVER.

Scale 1 : 110,000.



Shorncliffe camp, and reach *Hythe*, one of the Cinque Ports. *Hythe* signifies "port," but the old town is now separated by a waste of shingles from the sea, and its commerce has passed over to its neighbour, Folkestone. *Hythe* is the seat of a School of Musketry, and the low coast westward is thickly studded with rifle-butts. The Royal Military Canal extends from *Hythe* to *Rye*, in *Sussex*, and bounds the *Romney Marsh*, famous for its sheep, on the landward side. The principal town in this tract of rich meadow land is *New Romney*, one of the Cinque Ports, though now at a distance of more than a mile from the sea. *Lydd* and *Dymchurch* are mere villages, interesting on account of their antiquity. There now only remains to be mentioned the ancient municipal borough of *Tenterden*, in a fertile district on a tributary of the *Rother*.

ESSEX is a maritime county, separated from Kent by the Thames and its estuary, from Middlesex and Hertfordshire by the rivers Lea and Stort, and from Suffolk by the Stour. Of the rivers which drain the interior of the county, the Roding flows into the Thames, whilst the Crouch, Blackwater, and Colne are directly tributary to the German Ocean. These latter expand into wide estuaries, forming convenient harbours, and are famous for the breeding of oysters. The surface of the country is for the most part undulating. A small tract of chalk occurs in the north-west, but loam and clay predominate, and form gentle slopes. The coast is much indented and broken up into flat islands. It is fringed by marshes protected by sea-walls and drainage works. Most of the ancient forests have been extirpated, and it is only quite recently that the most picturesque amongst them, that of Epping, narrowly escaped destruction through the public-spirited action of the Corporation of London. Agriculture constitutes the chief occupation, the requirements of the metropolitan markets largely influencing its character. Manufactures, particularly of baize, were formerly carried on upon a large scale, but are now of small importance. The fisheries, however, together with the breeding and feeding of oysters, constitute one of the sources of wealth.

West Ham, which includes Stratford and other places near the river Lea, in the south-western corner of the county, is, properly speaking, an eastern suburb of the metropolis, where numerous industries, some of them not of the most savoury nature, are carried on. The Royal Victoria and Albert Docks here extend for nearly 3 miles along the northern bank of the Thames, between the Lea and North Woolwich, and near them are iron works, ship-yards, and chemical works. Stratford has extensive railway works, oil and grease works, gutta percha factories, and distilleries. *Plaistow* is noted for its market gardens. *Walthamstow*, a short distance to the north, and on the western edge of Epping Forest, early became a favourite residence with opulent citizens, and has still many quaint old-fashioned mansions embowered in trees. *Waltham*, on the Lea, is famed for the remains of its ancient abbey. An old bridge connects that part of the parish which lies in Essex with Waltham Cross, in Hertfordshire, named from one of the crosses erected to mark the resting-places of Queen Eleanor's body. The Government gunpowder-mills are built above Waltham Abbey, on a branch of the Lea. They cover an area of 160 acres, and the various buildings are separated by meadows and woods, as a safeguard against accidents. *Harlow*, now a quiet market town on the Stort, a tributary of the Lea, formerly carried on the manufacture of silk.

Epping Forest, which lies between the Lea and the Upper Roding, is named after a pleasant market town, the vicinity of which is famed for its dairy farms. Descending the Roding, we pass *Chipping Ongar*, *Wanstead*, *Ilford*, and *Barking*, where are the remains of a Cistercian abbey, not far above the mouth of the river. *Romford*, on the Rom, which enters the Thames lower down, is well known for its brewery. The ancient town of *Brentwood* lies to the east of it, in the midst of fine scenery. Its old Elizabethan assize-house is at present in the occupation of a butcher. There is a grammar school, founded in 1557.

There are no towns of note along the Essex bank of the Thames. *Rainham*, on the river Ingrebourne, about a mile from it, is the heart of a fertile market-gardening district. It has an early Norman church. *Purfleet* is merely a small village, with lime and chalk quarries, and a Government powder magazine. *Tilbury*, opposite Gravesend, with its old fort, has already been referred to. *Thames Haven*, joined to London by a railway, has not acquired the hoped-for importance, since foreign cattle are now obliged to be landed at Deptford; and only *Southend*, near the mouth of the Thames, has made any progress as a watering-place. At *Shoeburyness*, 3 miles to the east of it, a Royal School of Gunnery for artillery practice has been established.

The only towns on the Crouch are *Billericay*, a pretty market town, and *Burnham*, which engages in fishing and oyster-breeding, on the estuary of the river.

The Blackwater rises in the north-western part of the county, and flows past Braintree, Coggeshall, Kelvedon, and Witham to Maldon, where it is joined by the Chelmer. *Braintree* is an old town, with narrow streets and many timbered houses. The manufacture of crape and silk is still extensively carried on there, and in the adjoining village of Bocking. *Coggeshall* has manufactories of silk, plush, and velvets. The remains of the Cistercian abbey founded here by King Stephen in 1142 are scanty. Near *Kelvedon* is Tiptree Hall, Mr. Mechi's experimental farm, which attracts strangers from every part of the world. *Maldon* occupies a steep eminence by the river Chelmer. Its port is accessible to vessels of 200 tons burden, and a brisk coasting trade is carried on through it. Maldon is a very ancient town, and amongst its buildings are a church of the thirteenth century with a triangular tower, and a town-hall of the reign of Henry VII. Malting, brewing, and salt-making are carried on. Near the town are the remains of Billeigh Abbey, and below it, at the mouth of the Blackwater, is the village of *Bradwell*, the site of the Roman *Othona*.

Chelmsford, the county town, stands at the junction of the navigable Chelmer with the Cann. St. Mary's Church, partly dating back to the fifteenth century, the free school endowed by Edward VI., the museum and shire-hall, are the most interesting buildings. Chief Justice Tindal, whose statue stands in front of the shire-hall, was a native of Chelmsford. Agricultural machinery is made, and the trade in corn is of importance. *Great Dunmow* and *Thaxted* are market towns on the Upper Chelmer, and both have interesting old churches.

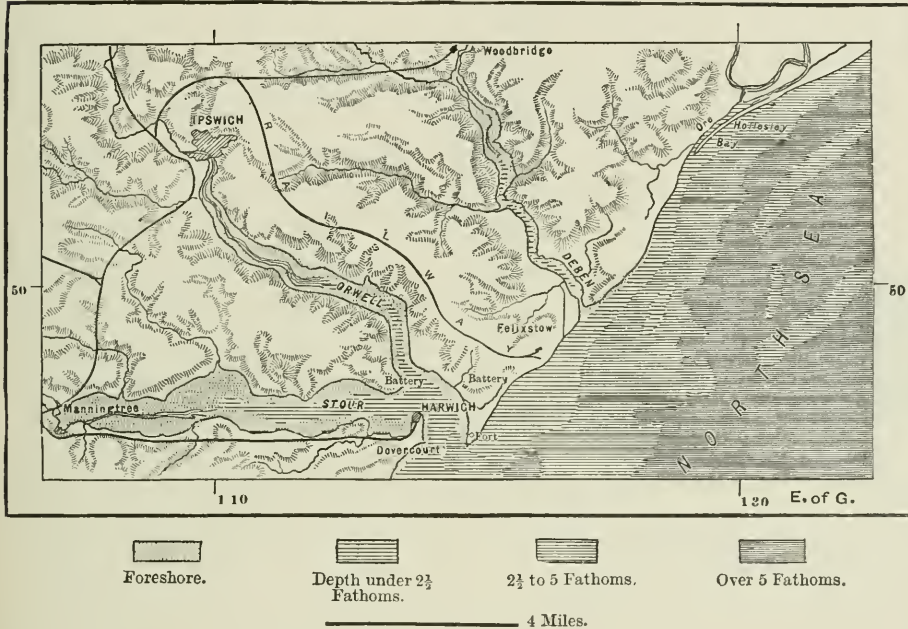
Colchester, on the Colne, 8 miles above its mouth at Brightlingsea, is the largest town in Essex, and occupies the site of *Colonia Camelodunum*, the first Roman colony in Great Britain. Ample remains of Roman times still exist in the town wall; whilst the keep of the old Norman castle, double the size of the White Tower of London, the ruins of St. Botolph's Priory Church, and St. John's Abbey Gate, the last relic of a Benedictine monastery founded in 1096, adequately represent the Middle Ages. The museum in the chapel of the castle is rich in Roman and other antiquities. The Port or "Hythe" of Colchester is too shallow to admit the huge vessels in which most

of the world's commerce is carried on now, and the maritime trade is consequently not of very great importance; nor is the silk industry in a flourishing condition. The celebrated Colchester oysters are taken in the Colne, and fattened on "layings" at Wivenhoe and Brightlingsea, or carried to the oyster parks of Ostend. *Halstead*, on the Upper Colne, has silk and crape mills.

Sailing along the coast, we pass *Clacton* and *Walton-on-the-Naze*, two small watering-places, and reach the ancient seaport and borough of *Harwich*, built in a

Fig. 104.—HARWICH AND IPSWICH AND THEIR ESTUARIES.

Scale 1 : 325,000.



commanding position at the confluence of the Stour and the Orwell. The harbour of Harwich is the best on the east coast of England, and during the wars with the Dutch it played a prominent part. Through the establishment of a regular line of steamers, which connect it with Antwerp and Rotterdam, it has recently acquired importance as a place of commerce. Landguard Fort and several batteries defend its approaches. *Dovercourt* is a pleasant watering-place a short distance above Harwich. *Manningtree*, at the head of the estuary of the Stour, carries on some trade in malt.





CHAPTER VII.

EAST ANGLIA.

(SUFFOLK AND NORFOLK.)

GENERAL FEATURES.



THE two counties of Norfolk and Suffolk form a distinct geographical region, extending along the shore of the German Ocean, from the shallow bay known as the Wash as far as the estuary of the Stour. Originally these counties were conquered and settled by the Angles, and, together with Cambridgeshire, they formed the kingdom of East Anglia, which submitted in 823 to the sovereignty of the King of Wessex, but was for a considerable time afterwards governed by its own kings or ealdormen. Subsequently many Danes settled in the country, which was included in the "Danelagh."

IN EAST ANGLIA we meet with no elevations deserving even the name of hills. The bulk of the country is occupied by chalky downs, known as the East Anglian Heights, and forming the north-eastern extremity of the range of chalk which traverses the whole of England from Dorsetshire to the Hunstanton cliffs, on the Wash. Towards the west these heights form an escarpment of some boldness, but in the east they subside gradually, and on approaching the coast sink under tertiary beds of London clay and crag.

The principal rivers are the Orwell, the Deben, the Alde, the Yare, and the Waveney. The two latter flow into Breydon Water, a shallow lake 4 miles in length, from which the united stream is discharged into the North Sea at Great Yarmouth. Formerly the Waveney had a natural outfall farther south, through Lake Lothing, near Lowestoft; but a bar of shingle and sand having formed at its mouth, it became necessary to construct a canal in order to afford vessels direct access to the upper part of the river. The western portion of the country is drained by the Ouse and its tributaries.

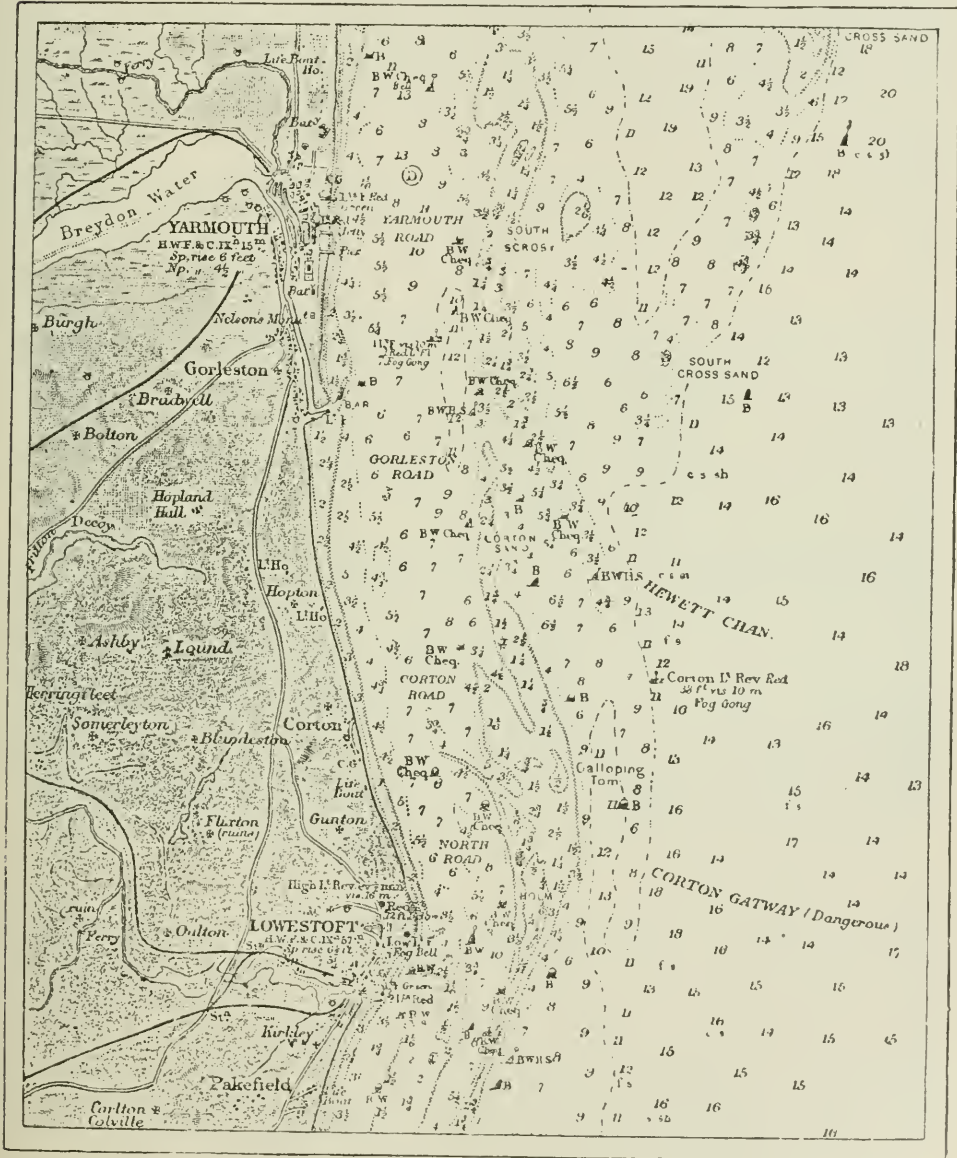
In no other part of England do we meet with so many marks of geological agencies as in East Anglia. At one period the Yare and Waveney expanded into a wide arm of the sea, whilst now they traverse broad plains abounding in marshy

flats, locally known as “broads” or “meres.” This gain upon the sea appears, however, to have been more than counterbalanced by losses suffered along parts of the coast where the sea, for centuries past, has been encroaching upon the land.

The climate of East Anglia is colder, and the rainfall less than in the remainder

Fig. 105.—GREAT YARMOUTH AND LOWESTOFT.

From an Admiralty Chart.



of England; but the soil is nevertheless productive, and agriculture is carried on with remarkable success, 80 per cent. of the total area being under cultivation. Wheat and barley are the principal crops grown. The manufactures established by Flemish and Huguenot refugees were of considerable importance formerly, but they

have now declined. The fisheries, however, still yield a considerable revenue, notwithstanding that Yarmouth is no longer the centre of the herring trade, having in a large measure been supplanted by Peterhead and other Scotch towns.

TOPOGRAPHY.

SUFFOLK, the country of the "South Folk," is bounded on the south by the Stour, which separates it from Essex, and on the north by the Waveney, which divides it from Norfolk, and extends from the German Ocean in the east to the lowlands of Cambridgeshire in the west. Its principal rivers flow to the German Ocean, but the western portion of the county is drained by the Lark, which is tributary to the Ouse.

Haverhill and *Clare* are small market towns in the upper valley of the Stour. Both engage in silk and coir weaving, and *Clare* possesses, moreover, the ruins of an ancient Norman stronghold, and of a priory of Augustine friars founded in 1248 by one of the Earls of *Clare*. At *Sudbury* the Stour becomes navigable for barges. This town was one of the first in which Flemish weavers established themselves, and the manufacture of silk and crape still gives employment to many of its inhabitants. Thomas Gainsborough, the artist, was born here. *Hadleigh*, on the Brett, an affluent of the Stour, was one of the ancient centres of the woollen trade, and the neighbouring villages of *Kersey* and *Lindsey* are supposed to have given their names to certain well-known fabrics.

Ipswich, the capital town of the county, stands at the head of the estuary of the Orwell, and its docks are accessible to vessels drawing 15 feet of water. It is a picturesque place, with fourteen churches and several interesting old buildings. It was distinguished at one time for its linen trade, and is still a busy place, with famous works for the manufacture of agricultural implements and other industrial establishments. Its coasting trade is very considerable. *Stowmarket* is a thriving town near the head of the Gipping, which enters the estuary of the Orwell. It has a gun-cotton factory.

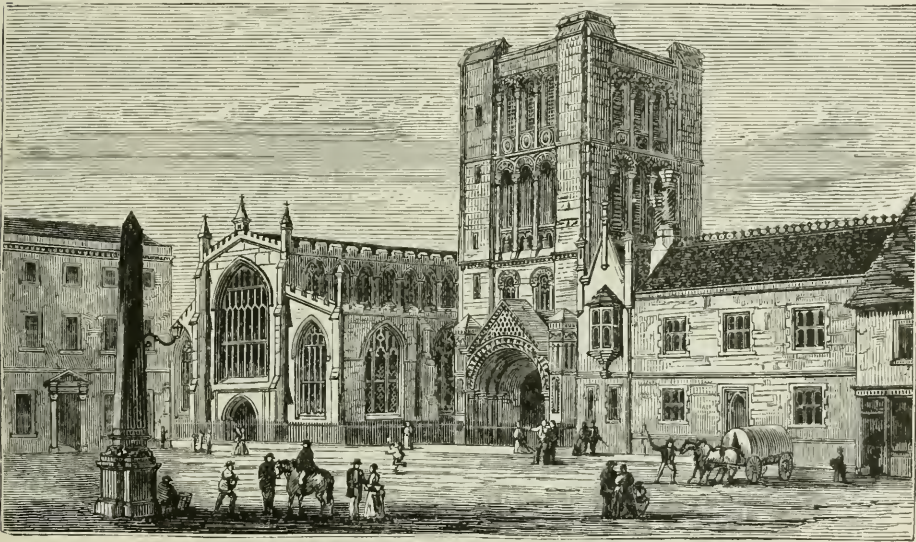
Woodbridge, at the head of the estuary of the Deben, occupies a position analogous to that of *Ipswich*, but is a place of very inferior importance, though enjoying a great reputation amongst horse-breeders. Travelling northward along the coast, we pass *Orford*, with the remains of a famous old castle, on the estuary of the Alde, at the back of *Orford Ness*; *Aldeburgh*, or *Aldborough*, a small seaport and fishing station, the birthplace of Crabbe, the poet; *Dunwich*, a place of importance formerly, but now merely a small watering-place; and *Southwold*, noted for its mild climate. In *Southwold* or *Sole Bay* was fought in 1672 a great naval battle between the allied English and French fleets and the Dutch.

Lowestoft is picturesquely seated upon an eminence to the north of the canal which joins Lake Lothing and the Waveney to the sea. It is a curious old place, with narrow streets, or "scores," and gardens sloping down to the "Denes," a deserted tract of shingle intervening between the cliffs and the sea. New *Lowestoft*, one of the most cheerful watering-places of England, lies to the south

of the harbour. For its prosperity Lowestoft is almost exclusively dependent upon seaside visitors and its herring fishery, which employs 350 boats. Its harbour is formed by two vast piers, and a canal connects it with Lake Lothing, which thus constitutes an inner harbour. *Beccles* and *Bungay* are towns pleasantly seated upon the navigable Waveney. They both carry on a brisk trade in corn, and Bungay engages, moreover, in the silk trade and in book-printing.

Bury St. Edmunds, the capital of Western Suffolk, occupies a pleasant position near the head of the river Lark, and is famed for its salubrity. It acquired fame and wealth as the resting-place of St. Edmund, King of East Anglia, who was slain by the Danes about the year 870. Its abbey became one of the wealthiest and most powerful in England, and its remains, including a great Norman tower built in 1090, are even now of great interest. But though Bury has ceased to be the great religious centre of Eastern England, and wealth is no longer poured in its lap by

Fig. 106.—NORMAN TOWER AND ABBEY: BURY ST. EDMUNDS.



crowds of pilgrims, it is still a prosperous place, carrying on a large trade in corn, brewing an excellent ale, and manufacturing agricultural machinery. *Ickworth*, in its neighbourhood, is a residence of the Marquis of Bristol, and, standing on high ground, it forms a conspicuous landmark.

Thetford, on the Little Ouse, to the north of Bury, is one of the most ancient settlements in the eastern counties, and was a chief residence of the East-Anglian kings. In the reign of Edward III. it is said to have contained twenty churches and eight monasteries, and the colossal earthworks which cover the "Mount," or "Castle Hill," bear witness to its former importance. It has settled down now into a quiet market-place, depending upon the neighbouring farmers for its existence.

Newmarket, on the western border of the county, and partly in Cambridgeshire, is famous as the "metropolis of the turf," and the virtual head-quarters of the Jockey Club. Newmarket Heath, the site of the racecourse, lies to the west of

the town. Seven meetings take place annually—the Craven, on Easter Monday, and the Houghton on the 3rd of October, being the most famous. There are numerous stables belonging to trainers in the outskirts of the town, and about 400 horses are kept in them during the greater part of the year.

NORFOLK, the country of the “North Folk,” is occupied for the greater part by the East Anglian heights, and most of its rivers wend their way eastward to the Ware, and, having been gathered in Breydon Water, are discharged into the German Ocean at Great Yarmouth. The western portion of the county, however, forms part of the district of the Fens, and is drained by the sluggish Ouse.

Norwich, the capital, is seated on the river Wensum, the chief feeder of the Yare, and is one of the most interesting cities of England. The Norman keep of

Fig. 107.—NORWICH CATHEDRAL.

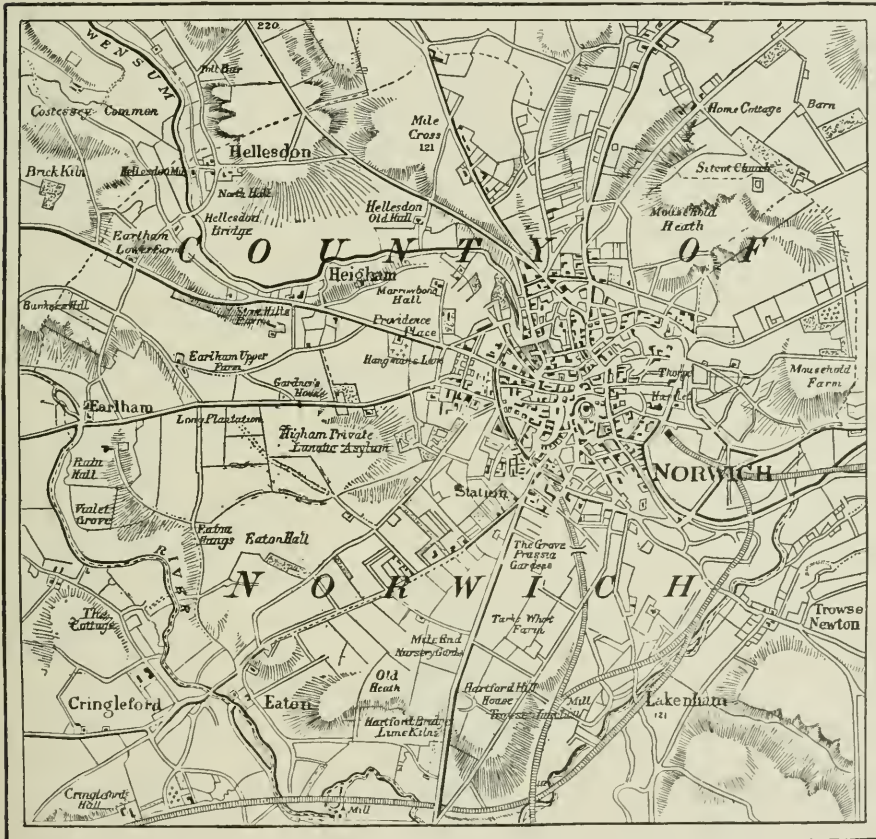


the castle, towering over a lofty mound, forms the most conspicuous feature of the town. It is used now as a gaol. Near it stands the modern shire-hall, and at its foot an extensive cattle market. The cathedral, in the main a Norman edifice, the first stone of which was laid in 1096, stands on the low ground near the river, which is here spanned by a venerable bridge constructed in 1395. In addition, there are numerous churches dating back to the fourteenth century, and to a stranger not deterred by the intricacy of its streets, Norwich presents many other buildings full of interest. Foremost amongst these are the Guildhall in the market-place, St. Andrew's Hall in an old monastery, the Bishop's palace within

the cathedral precincts, and a grammar school lodged in an ancient charnel-house. There are also fragments of the old walls and gates. The town possesses a public library of 40,000 volumes, a museum, and a Literary Institution. Placed in the centre of a fruitful agricultural district, famous for its cattle and the beauty of its horses, it is only natural that Norwich should have become a great mart of agricultural produce; but it is at the same time a manufacturing town of no mean importance, although in this respect it is now merely the shadow of its

Fig. 108.—NORWICH.

From the Ordnance Map. Scale 1 : 30,663.



1 Mile.

former self. In the sixteenth century about four thousand Flemings, driven from their homes by the Spanish Inquisition, settled in Norwich and introduced the woollen trade. These were subsequently joined by French Huguenots skilled in making brocades and velvets as well as clocks and watches. In Defoe's time the city and its neighbourhood employed 120,000 workmen in its woollen and silk manufactures. In the present day the staple trade of Norwich is boot and shoe-making. Besides this the manufacture of bombasins, crapes, camlets, and other fabrics of worsted, mohair, and silk, is carried on, and there are oil-cake factories

and mustard works. The river below the town has been made navigable for vessels drawing 10 feet of water, but Great Yarmouth is virtually its seaport.

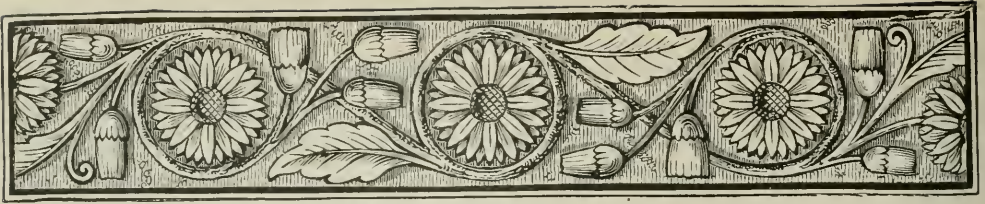
One of the decayed seats of the linen and woollen industry is *Aylsham*, 10 miles to the north of Norwich, at the head of the navigation of the Bure, a cheerful town in a well-wooded country, known as the "Garden of Norfolk." Near it are the villages of *North Walsham* and *Worstead*, the latter notable as the place where Flemings first manufactured the fabric known as worsted. *East Dereham* and *Wymondham* are towns to the west of Norwich, the former a flourishing place surrounded by market gardens and orchards, the latter of no note since the dissolution of the Benedictine priory around which it grew up. The poet Cowper lies buried in the fine old parish church of East Dereham. *Diss*, on the Waveney, is a quaint old market town with a remarkable church.

We have stated above that the great rivers of Norfolk converge upon Breydon Water, and thus *Great Yarmouth*, which occupies a flat tongue of land at the mouth of the Yare, possesses considerable advantages for carrying on an extensive commerce. The town consists of two portions—the old town, which faces the Yare, and the modern town, opening on the Marine Parade. A quay, planted with lime-trees and lined with curious old houses, extends for nearly a mile along the river, and terminates in the south with the Nelson Column, a Doric pillar 144 feet in height, and surmounted by a statue of Britannia. This is the busy part of the town, whilst the Parade, with its two piers, is the chief place of resort for the numerous excursionists who visit the town during the summer months. But it is neither as a watering-place nor as a commercial port that Yarmouth prospers most, for its wealth depends upon its herring and mackerel fisheries, which employ a large part of the population. As early as the thirteenth century, and long before Beukelszoon's alleged invention, the fishermen of Yarmouth knew how to cure the herrings they caught. The inhabitants of the town claim to be descended from a Danish colony which established itself on this coast soon after the Saxon conquest. Many words of Scandinavian origin are preserved in the local dialect. Thus the navigable channels between the banks which skirt the coast are known as "Gats," as on the coast of Denmark. Yarmouth Roads, which are protected by these sand-banks from the fury of the North Sea, present the only secure anchorage between the Humber and the Thames, and whole fleets of colliers and coasting vessels may sometimes be seen riding there.

Cromer is a pretty fishing and watering place on the north coast of Norfolk, which here forms cliffs nearly 200 feet in height. Its vicinity furnishes ample proof of the rapidity with which the cliffs are being undermined by the sea, for landslips meet the eye in every direction. *Cley*, or *Cleyton-next-the-Sea*, to the west of Cromer, is a small seaport in an uninteresting flat country. *Wells-next-the-Sea*, on a small creek which forms an indifferent harbour, carries on some trade in corn, coals, timber, and salt. Near it is Holkham Hall, the magnificent seat of the Earl of Leicester. It has a memorial column erected to Mr. Coke, who was deservedly honoured for the agricultural improvements he introduced, and was created Earl of Leicester in 1837.

King's Lynn is the principal town in that part of the county which is drained by the river Ouse. In former times it was a place of considerable importance, and carried on a great trade with Flanders, the Hanse Towns, and the Baltic ports; but its commerce fled when its harbour became silted up. Recently, however, a navigable channel has been constructed through the mud and sand-banks which intervene between the town and the "deeps" of the Wash, and vessels of 300 tons can now enter the Alexandra Docks with every high tide. Flax-dressing and machine-making are carried on in the town, and sand, used in the manufacture of glass, is enumerated amongst the articles of export. There are several quaint old buildings, including a Guildhall, and a custom-house "that might have been bodily imported from Flanders;" and one of the ancient town gates still remains. *Sandringham*, a country seat of the Prince of Wales, lies about 8 miles to the north of Lynn. *Downham Market*, on the Ouse above Lynn, carries on a brisk trade in butter. *Swaffham*, in the upland to the east of the Ouse, is a well-built market town. *Castle Acre*, with the picturesque remains of a priory, lies about 4 miles to the north of it.





CHAPTER VIII.

THE BASIN OF THE WASH.

(BEDFORDSHIRE, CAMBRIDGESHIRE, HUNTINGDONSHIRE, NORTHAMPTONSHIRE, RUTLAND, LINCOLNSHIRE.)

GENERAL FEATURES.



THESE are the English Netherlands, and one of the districts even bears the name of Holland—and that with perfect justice. The aspect of the two countries is precisely the same. As in Holland, so in the district of the Fens, the country forms a perfect level, and a traveller sees trees, houses, windmills, and other elevated objects rise gradually above the horizon, like ships on the ocean. The country of the Fens occupies an area of nearly 1,200 square miles, and it is intersected by innumerable artificial water channels—some of them broad like rivers, and capable of bearing large vessels, others mere drains, whose direction is indicated from afar by a fringe of reeds. The waters would flood nearly the whole of this region if artificial means were not employed to get rid of the excess. The coast, the rivers, and the canals are lined by embankments, which prevent the water from invading the adjoining fields and meadows. Trees are scarce; only willows are reflected in the sluggish waters, and here and there clumps of verdure surround the isolated homesteads. The soil of English Holland is also the same as that of the Netherlands. In a few localities clayey soil of exceeding fertility slightly rises above the surrounding plain, and here the most ancient villages of the country are found. As a rule, the soil consists of peat, which has gradually been transformed by cultivation. The district of the Fens lies, moreover, at a higher level than the greater part of veritable Holland. It has been raised by warping, and as there are no “polders” whose level is inferior to that of the sea, the danger from inundation is very much less. In 1613, however, several villages were overwhelmed by a flood, and an extensive tract of productive land converted temporarily into a marsh, but since that time the sea has not again broken through the embankments which form its bounds. The rainfall is less considerable than in the Netherlands,* and the floods of the small rivers which intersect the lowlands

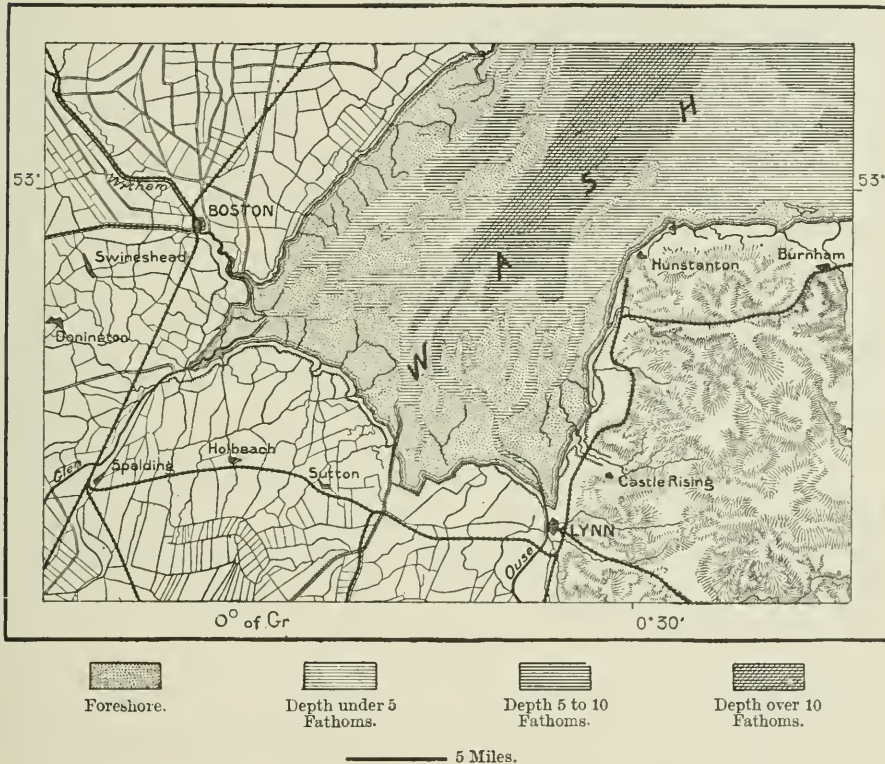
* Average rainfall in the basin of the Wash	.	.	.	.	22 inches.
„ „ Holland	.	.	.	.	27 „

bordering upon the Wash are consequently not at all comparable to those of the Meuse or Rhine. Hence the inhabitants of the country of the Fens have not recently been called upon to contest with the elements the possession of the soil which bears their habitations.

The geological history of the two countries is the same, for the sea has struggled for the possession of both. Near Peterborough, at a distance of 25 miles from the actual coast, oysters and molluscs have been found in large quantities, mingled with fresh-water shells. In Whittlesea Mere, now drained, the bones of seals have been discovered by the side of those of other animals, and at Waterbeach,

Fig. 109.—THE WASH.

Scale 1 : 240,000.



within 10 miles of Cambridge, the remains of a whale have been unearthed. There can be no doubt that the whole of this district of the Fens was formerly covered by the sea, and formed a huge marine estuary.* But at the glacial epoch the country had already emerged, for everywhere beneath the recent alluvial deposits we meet with gravels and boulder clay, and at that time a broad plain probably united England to the continent.† Even after the glacial epoch, when oscillation of the soil and erosive action of the sea had completely changed the face of the country, the district of the Fens yet retained a sufficient elevation to become the

* Evans, "Ancient Stone Implements of Great Britain."

† Ramsay, "Physical Geology and Geography of Great Britain."

residence of human beings. This is proved by the flint weapons and implements which, together with fresh-water shells and the bones of oxen and mammoths, have been discovered on the river terraces along the Ouse.

The peat of the Fens in several places attains a thickness of 10 feet. As in the peat of the Netherlands, there are embedded in it the remains of ancient forests, the bones of wild boars, stags, and beavers, and more rarely weapons and boats which belonged perhaps to the ancient Britons. It has been noticed that the most elevated peat yields oak, whilst that nearer the sea conceals only ancient forests of fir.* In proportion as the soil subsides these buried trunks of trees come to be nearer the surface, just as in Holland, and very frequently the plough-share strikes against them. There are localities where the wood recovered from the peat suffices for the construction of fences.

The embankment and reclamation of these lowlands were begun more than eighteen hundred years ago. An old embankment, traces of which are still visible a few miles from the actual coast-line, connects all those towns which are known to have been Roman stations. The Normans raised powerful dykes along the river Welland for the protection of the adjoining flats, but the drainage works on a really large scale date back no further than the seventeenth century, and were carried out by a company formed by the Earl of Bedford. It is from this circumstance that a large portion of the Fen country is known as the Bedford Level. Later on Dutchmen, taken prisoners in a naval battle fought in 1652, were employed in the construction of canals and dykes, and the lessons then conveyed proved very profitable. Not a decade has passed since without the extent of cultivable land having been increased at the expense of the sea. A line drawn through the ancient towns of Wainfleet, Boston, Spalding, Wisbeach, and King's Lynn approximately marks the direction of the coast in the Middle Ages. The towns named have travelled inland, as it were, ever since, and new dykes and embankments are for ever encroaching upon the bay of the Wash. Propositions have even been made for blotting out that indenture of the sea altogether. Natural obstacles would not prevent such a work from being carried to a happy conclusion, for the Wash is encumbered with banks of sand and mud, which would assist such an embankment. Many of the towns, villages, and homesteads whose names terminate in "beach," "sea," "mere," or "ey," proving that formerly they were close to the sea, and even on islands in the midst of it, now lie 5, 10, or even 30 miles inland, and a few shallow meres are all that remain of an estuary which at one time extended inland as far as the Cam, Huntingdon, Peterborough, and Lincoln.

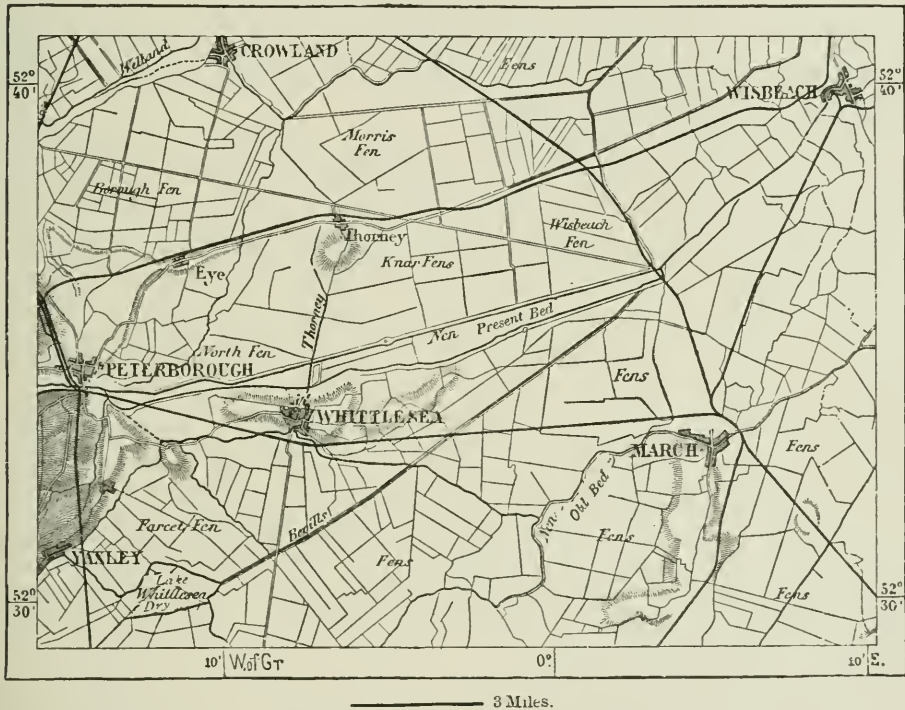
The islands which rose in the midst of this estuary were formerly of great historical importance, for they proved an asylum to the persecuted of every race. Quaking bogs and marshes enabled Ditmarschers, Frieslanders, and Batavians to maintain their independence for a considerable time; and similarly the inhabitants of the Fen country, too, repeatedly endeavoured to throw off the yoke of their

* John Algernon Clarke, "On the Great Level of the Fens" (*Journal of the Agricultural Society of England*, vol. viii.).

masters. They might have finally succeeded in this had their half-drowned lands been more extensive, and the facilities for communicating with the continent greater. When the Saxons invaded England the people of the Fens fled to the islands of Ely, Rams-ey, Thorn-ey, and others, and for a considerable time they resisted successfully. At a later date the Saxons and Angles established their "Camp of Refuge" in the Isle of Ely, and under the leadership of Hereward they repeatedly routed their Norman oppressors, until the treachery of the ecclesiastics of Ely put an end to their resistance.* But the spirit of independence in the

Fig. 110.—THE FENS OF WISBEACH AND PETERBOROUGH.

Scale 1 : 182,000.



people was not wholly crushed; it rallied many of them to Cromwell's standard in 1645, and survives to the present day.

The Ouse, Nen, Welland, and Witham, which traverse this lowland region, have frequently changed their channels even within historical times. They can hardly be said to take their course through valleys, but rather spread themselves over wide flats, and before they had been confined within artificial banks they stagnated into vast marshes. The actual channels of these rivers are altogether the work of human industry. Numerous "leams," or "caus," a French term evidently introduced by the Normans,† discharge themselves direct into the sea, but their mouths are closed by sluices, and these are kept shut as long as the tide rises. Thanks to the innumerable drains now intersecting the plain in all directions,

* Augustin Thierry, "Histoire de la conquête de l'Angleterre par les Normandes."

† Elstobb, "Historical Account of the Great Level of the Fens."

most of the windmills which were formerly employed, after the practice common in Holland, to raise the water into artificial channels, can now be dispensed with, and even steam-engines need not be kept at work to the same extent as formerly. It happens unfortunately that the interests of navigation and agriculture are irreconcilable; for whilst mariners demand that the water be retained in the channels by means of locks, so as to render them navigable, the agriculturists desire to see the water carried off to the sea as rapidly as possible. They point to the lock which obstructs the discharge of the Witham as to the principal cause of the dampness of the soil around Boston. The removal of this lock, they say, would enable them to dispense with fifty steam-engines and two hundred and fifty windmills which are now incessantly engaged in the drainage of the Fens near that town. The river Witham is subject to a "bore" of considerable force, though less powerful than that of the Severn. On the eastern coast of England this phenomenon is known as "eagre."

A range of heights of inconsiderable elevation separates the basin of the Wash from that of the Humber, and presents a precipitous front towards the plain of Central England. It is composed of liassic and oolitic rocks, which sink down on the east between the tertiary clays and alluvial formations which occupy the greater extent of the region now under consideration. In the south and west the cretaceous downs, known as the East Anglian Heights, form a steep escarpment of slight elevation. They dip beneath the Wash, and reappear to the north in the Lincoln Wolds.

Of all rivers which wend their sluggish course towards the Wash, the Ouse is by far the most considerable, and when that bay of the sea shall have been converted into dry land, the Witham, Welland, and Nen will become its tributaries. The Ouse rises near the southern border of Northamptonshire, traverses in its upper course the county of Buckinghamshire (see p. 162), crosses Bedfordshire and Cambridgeshire, and finally the western part of Norfolk, on its way to the Wash, which it enters below King's Lynn.

The six counties which lie wholly or for the most part within the basin of the Wash depend almost solely upon agriculture. Their soil is of exceeding fertility, and scarcely anywhere else in England do crops equally heavy reward the labours of the husbandman.

TOPOGRAPHY.

BEDFORDSHIRE consists in the main of a fertile clayey plain, traversed by the Ouse, and bounded on the south by the steep escarpment of the Chiltern Hills, here known as Dunstable and Luton Downs, and on the north by an oolitic upland, which separates it from Northamptonshire. Agriculture and market gardening are the principal occupations. Pillow lace is manufactured, though to a smaller extent than formerly, and straw plait for hats is made.

Bedford, the capital of the county, is pleasantly situated on the navigable Ouse. It is noted for its grammar school and charitable institutions. Agricultural

implements, lace, and straw plait are manufactured. There are a public library, a literary institution, and an archæological museum. John Bunyan was born in the neighbouring village of *Elstow*, and the town and its vicinity abound in objects connected with him.

Woburn is a quiet market town near the western border of the county, famous on account of the magnificent mansion of the Duke of Bedford (*Woburn Abbey*), which stands in the centre of a park 3,500 acres in extent. Fuller's earth is procured in the neighbourhood.

Leighton Buzzard, an old country town, is giving signs of renewed life since it has become a principal station on the London and North-Western Railway.

Biggleswade, on the Ivel, a navigable tributary of the Ouse, has been almost wholly reconstructed since 1785, in which year a conflagration laid it waste. *Dunstable*, at the northern foot of the Chiltern Hills, has interesting remains of a priory church founded by Henry I. The quarries in the Downs present many features of interest to the geologist. Some of the neighbouring heights are crowned with British earthworks. *Luton*, a straggling place with a remarkable Gothic church, lies beyond the Chiltern Hills, in the valley of the Thames. It is the centre of the trade in straw hats and bonnets, the plait for which is made in the neighbouring villages.

HUNTINGDONSHIRE stretches from the Nen in the north to beyond the Ouse in the south. Its surface is gently undulating in the west, but the north-eastern portion is for the most part embraced within the district of the Fens.

Huntingdon, the county town, is pleasantly seated upon the Ouse. An ancient stone bridge, erected before 1259, connects it with its suburb of *Godmanchester*, the site of the Roman station of *Duroloponis*. The trade in wool and corn is considerable, and patent bricks are made. Oliver Cromwell was born in the town, baptized in its ancient church, recently restored, and educated in its grammar school. *St. Ives* and *St. Neot's* are interesting market towns on the Ouse, the one below, the other above Huntingdon. *Kimbolton*, with a castle belonging to the Duke of Manchester, lies to the west. *Ramsey* is the principal town in the district of the Fens. *Stilton* is a village in the same part of the county. It is usually stated that "Stilton cheese" was first made here; but in point of fact it was originally produced in Leicestershire, and derives its name from having been first brought into notice at an inn of this village, which lies on the great northern road.

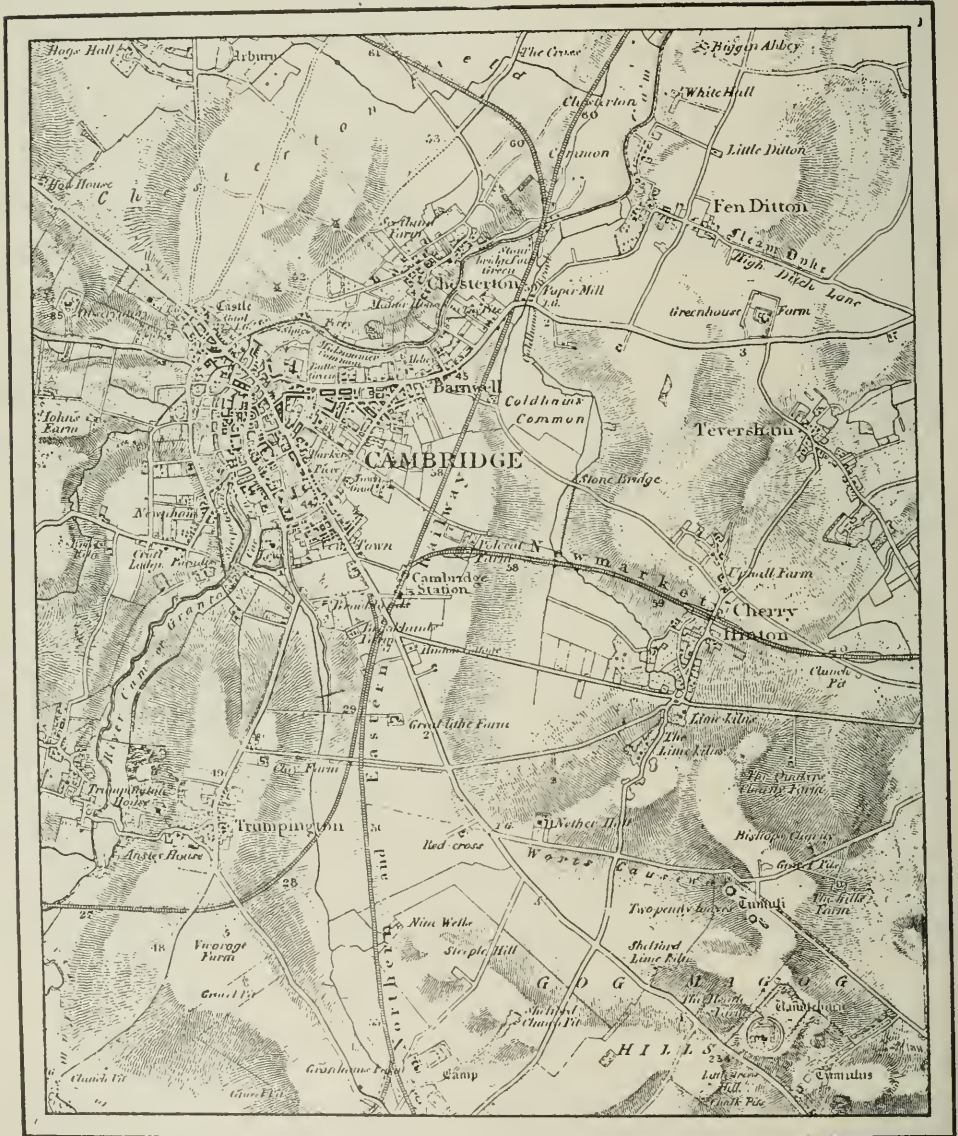
CAMBRIDGESHIRE lies almost wholly within the great level of the Fens, but the southern portion of the county has a finely diversified surface, and the chalk downs rise here to a height of between 300 to 500 feet. Butter and cream cheese are amongst the most highly appreciated productions, and the breeding of pigeons is carried on more extensively than in any other part of England, the produce of a single "pigeonry" frequently exceeding 100,000 dozens a year. The manufactures are unimportant.

Cambridge, the county town, is seated on the river Cam, which flows northward into the Ouse. Its university is a worthy rival of that at Oxford. Its situation in a wide plain is not so favourable or so picturesque as that of Oxford; but the green meadows surrounded by trees, which run along the

backs of the colleges, form a beautiful leafy screen bordering upon a river alive with gaily decorated rowing-boats. The public buildings of Cambridge are upon the whole inferior to those of Oxford, although there are amongst them

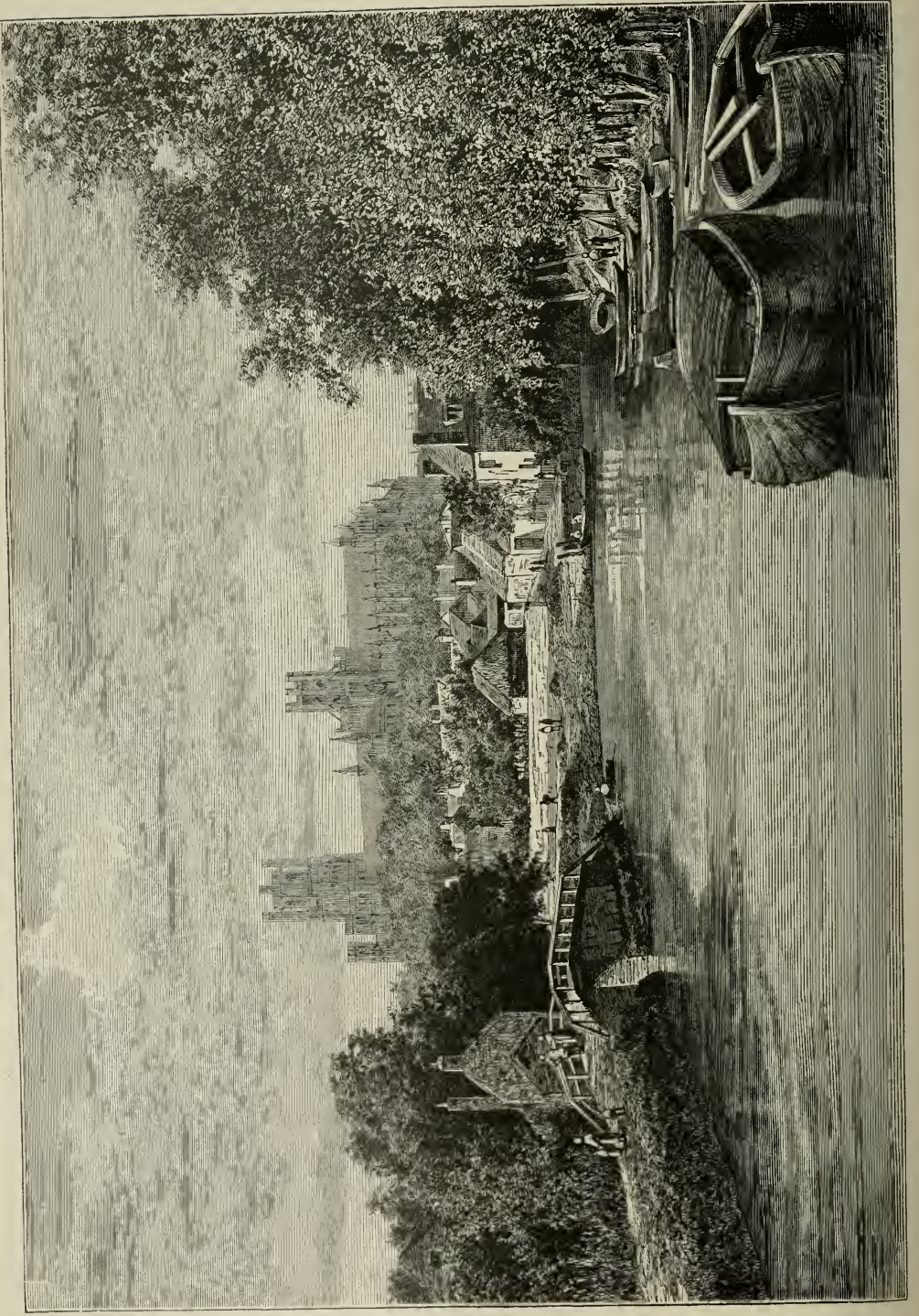
Fig. 111.—CAMBRIDGE.

From the Ordnance Map. Scale 1 : 63,366.



several which for size, stateliness, and beauty of architecture need not fear comparison. They are constructed of more durable stone, and the delicate tracery wrought by the sculptor's chisel survives in its pristine beauty.* King's College

* Demogeot et Montucci, "De l'Enseignement supérieur en Angleterre et en Écosse."



ELY, FROM THE BANKS OF THE OUSE.

Chapel, with its lofty roof and sumptuous yet chaste interior, overshadows all other buildings, and is indubitably one of the finest Gothic monuments of the fifteenth century. Trinity College, with its four courts, occupies a considerable area, and attracts more students than any similar institution in the country. Though not rejoicing in the possession of a library at all comparable with the Bodleian at Oxford, the University Library, with its 220,000 volumes and 3,000 manuscripts, and the libraries of the various colleges, nevertheless make a goodly show. The Woodwardian Geological Museum has grown, under the able direction of the illustrious Professor Sedgwick, into one of the most remarkable collections in Europe; the Observatory has also acquired fame through the discoveries of Mr. Adams; and the Fitzwilliam Museum, a fine classical building, is rich in works of art, including paintings by Titian, Paul Veronese, and other masters of the Italian school. The foundation of the university dates back to the early Middle Ages, and St. Peter's College is known to have been founded in 1257, and is consequently more ancient than any college of Oxford. There are seventeen colleges and two institutions Girton College and Newnham Hall have recently been founded for the education of ladies. Cambridge even more than Oxford depends for its prosperity upon its 2,500 professors, fellows, and under-graduates. When these retire during the vacations, dulness reigns in the streets, and Cambridge resembles a city of the dead. Parker's Piece, at other times the scene of cricket matches and athletic sports, lies deserted, and the boats on the Cam are hidden away in their boat-houses. *Newmarket*, so famous for its races, lies 11 miles to the west of Cambridge, in a detached portion of Suffolk (see p. 215).

Following the Cam on its way to the Ouse, we reach *Waterbeach*, where coprolites are dug and ground, and immediately afterwards we enter the district of the Fens. In front of us rises the isolated hillock, surmounted by the magnificent cathedral of *Ely*. This city is the capital of the district known as the Isle of Ely, and an ancient stronghold. The cathedral displays a mixture of many styles, and has been carefully restored. Its great western tower rises to a height of 270 feet, and the centre octagon, at the intersection of the nave and the transepts, is justly admired for its slender shafts and ribbed vaulting of wood. *March* and *Whittlesea* occupy eminences in the midst of the Fens, and both boast interesting old churches forming conspicuous landmarks. *Wisbeach*, on the navigable Nen, is the chief town in the northern part of the county. Vessels of 500 tons can enter the harbour of the town at high water. Wheat is the principal article of export. *Walsoken*, a village within the borders of Norfolk, is now virtually a suburb of Wisbeach. Its Norman church is one of the most beautiful in the east of England.

NORTHAMPTONSHIRE has for the most part a beautifully varied surface. The breezy uplands in its south-western portion give birth to the Nen and the Ouse, which flow to the Wash; and to the Avon, which takes its course to the Severn. The Nen is the principal river of the county, whilst the Welland bounds it for a considerable distance in the north. Along both these is some fine meadow land, whilst the north-east corner of the county is occupied by rich

fen land. The woodlands, consisting principally of the remains of ancient forests, are still very extensive; but the adjoining inhabitants have the right to cut the underwood and to depasture them, and they do not consequently yield as much timber as they would under better management. The manufacture of boots and shoes is extensively carried on, but other branches of industry languish, owing to the want of cheap coal.

Brackley and *Toucester* are ancient market towns in the extreme south of the county. *Darenty* occupies an eminence near the source of the river Nen. Not far from it are the remains of an ancient encampment.

Northampton, the most populous town in the basin of the Wash, stretches along a ridge of high ground on the left bank of the Nen, which here becomes navigable. Several Parliaments met in this venerable town, and the number of mediæval churches and other buildings is very considerable, but at the present day Northampton is known principally for its boots and shoes and its horse fairs. The environs are delightful, and gentlemen's seats abound. *Althorp Park*, the seat of Earl Spencer, with a library of 50,000 volumes, lies to the north-west. Descending the Nen, we pass *Castle Ashby* and the adjoining *Yardley Chase*, an extensive tract of woodland. On the other bank of the river rises the tower of the Saxon church of *Castle Barton*. Lower down the Nen flows past the old market town of *Wellingborough*, and is joined by the river *Ise*, which passes *Kettering* in its course. Both these towns are places of considerable importance, with iron mines in their neighbourhood and iron works. *Higham Ferrers*, on a lofty cliff looking down upon the Nen, was the birthplace of Archbishop Chichele, and the church, college, cross, school, and bedehouse raised and endowed by him form the most conspicuous features of the town. Continuing our journey past the pleasant town of *Oundle*, where the Nen is spanned by a bridge, we reach *Peterborough*, which has grown up around a Benedictine abbey founded on the borders of the Fen country in 655. The cathedral, with its magnificent western front completed about the middle of the thirteenth century, is the most remarkable building of the city. There are extensive railway works, and the manufacture of agricultural machinery is carried on. *Castor*, a village about 4 miles to the west of Peterborough, occupies the site of the Roman station of *Durobrivæ*, and much pottery and many coins have been discovered there. Still farther west are the remains of *Fotheringay Castle*, where Mary Queen of Scots was beheaded in 1587.

There are no towns on the Northamptonshire bank of the Welland, the only remarkable object being *Rockingham Castle*, founded by William the Conqueror.

RUTLANDSHIRE, the smallest county of England, lies to the north of the river Welland, above the Fen country, and has a beautifully varied surface. *Oakham*, the county town, stands in the fertile vale of Catmose. The assizes are held in the hall of its ancient castle, and there is a richly endowed grammar school. *Uppingham*, the second town of the county, has likewise a grammar school of considerable reputation.

LINCOLNSHIRE lies only partly within the basin of the Wash, for the Trent and

other rivers drain its northern portion into the Humber. Its surface is greatly diversified, a range of oolitic uplands stretches through the western portion of the county as far as the Humber, and through a gap in them the river Witham finds its way into the Wash. The chalk downs known as "Lincoln Wolds" occupy the eastern maritime portion of the county between the Humber and the Wash. These two ranges of upland are separated by a level tract of great fertility, which is drained by the Ancholme and the Witham, the former flowing northward into the Humber, the other taking its course towards the Wash. The coast is low and marshy, and around the Wash the marshes extend far inland and merge into the chief level of the Fens, the greater part of which is known as Holland. A similar district of fens and marshes lies beyond the river Trent, at the head of the Humber. This is the island of Axeholme, or Axel. Up to about 1626 this district was covered with marshes, its sparse inhabitants being confined to a few knolls rising above them. In that year a Dutchman, Vermuyden, undertook to drain the country, on condition of receiving one-third of the land recovered in free and common socage. Vermuyden performed his share of the contract in the course of five years, and about two hundred families, Dutch and French Protestants, settled in the district. But disputes between the original inhabitants of the country and these foreign settlers led to a protracted course of litigation, which continued till 1719, and ended in the Dutchmen being worsted.

In Lincolnshire all kinds of grain are produced in the greatest abundance, and the county has long been celebrated for its breed of horses, cattle, and sheep. Some of the finest dray horses seen in London are bred in the Fens. The industry of the shire is not, however, wholly agricultural; for the manufacture of agricultural implements is carried on with great success, and even a little iron is mined near Frodingham, a village close to the eastern bank of the Trent.

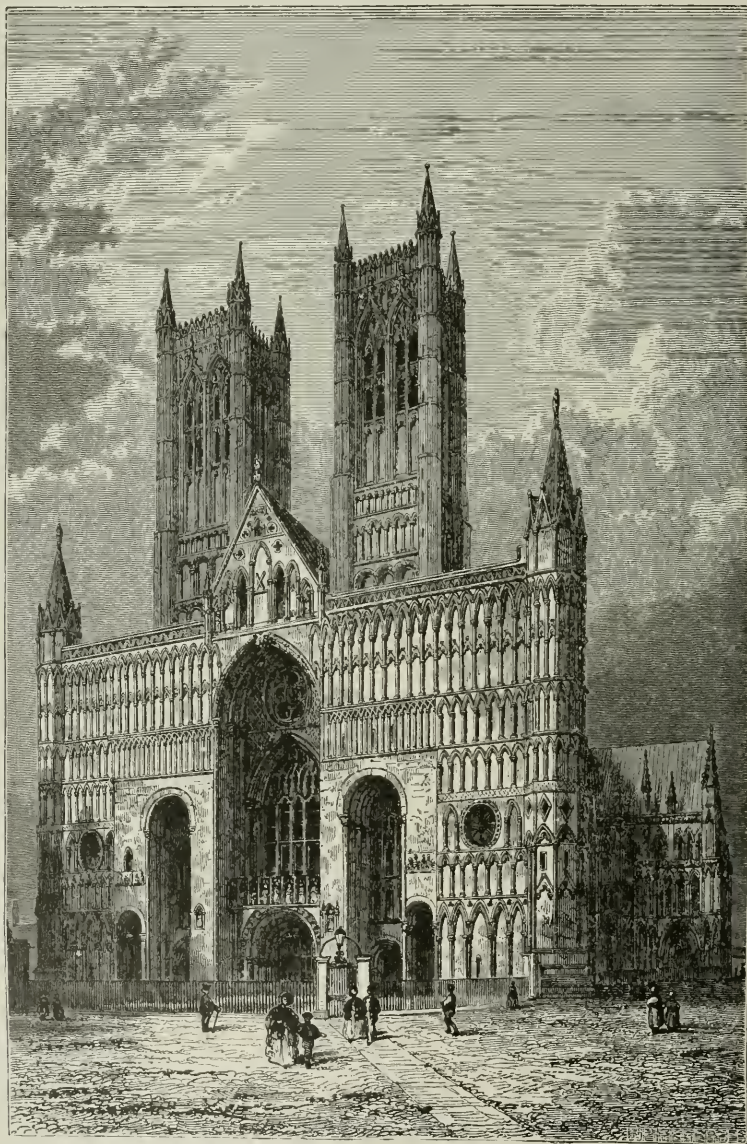
The county is divided into three "parts," viz. Lindsey in the north, Kesteven in the south-west, and Holland in the south.

The Welland is the principal river of Holland. It rises in Northamptonshire, separates that county from Leicestershire and Rutland, and first touches the borders of Lincolnshire a little above *Stamford*, an ancient borough which carries on a considerable trade in agricultural produce, and is one of the five "burghs" of the Danes. The other towns on the Welland are *Market Deeping*, *Crowland* (with an abbey), and *Spalding*. The latter is the capital of Holland, and has much trade in wool. *Holbeach* and *Long Sutton* are to the east of it, in the centre of the Fens. *Boston*, an ancient seaport, lies 14 miles above the mouth of the river Witham, and is accessible at spring tides for vessels of 400 tons burden. The lofty tower of the church of St. Botolph serves as a landmark to mariners. Many of its boats are engaged in the fishing, and the commerce with Holland and the north of England is of some importance. There was a time when it was second only to London, when the Hanseatic merchants had a factory here, and its annual fairs attracted crowds of purchasers. *Tattershall*, with the remains of the castle of the Lord Treasurer Cromwell, lies a few miles above Boston. *Horncastle*, on the Bain, a navigable tributary of the Witham, and at the west foot of the Wolds, carries on

much trade in corn, wool, and horses. *Sleaford* and *Bourne* are market towns of local importance, on or near the western border of the Fen country.

They both lie within the "part" of Kesteven whose principal river is the *Witham*, which rises in Rutlandshire, and flows northward past the ancient borough

Fig. 112.—LINCOLN CATHEDRAL.

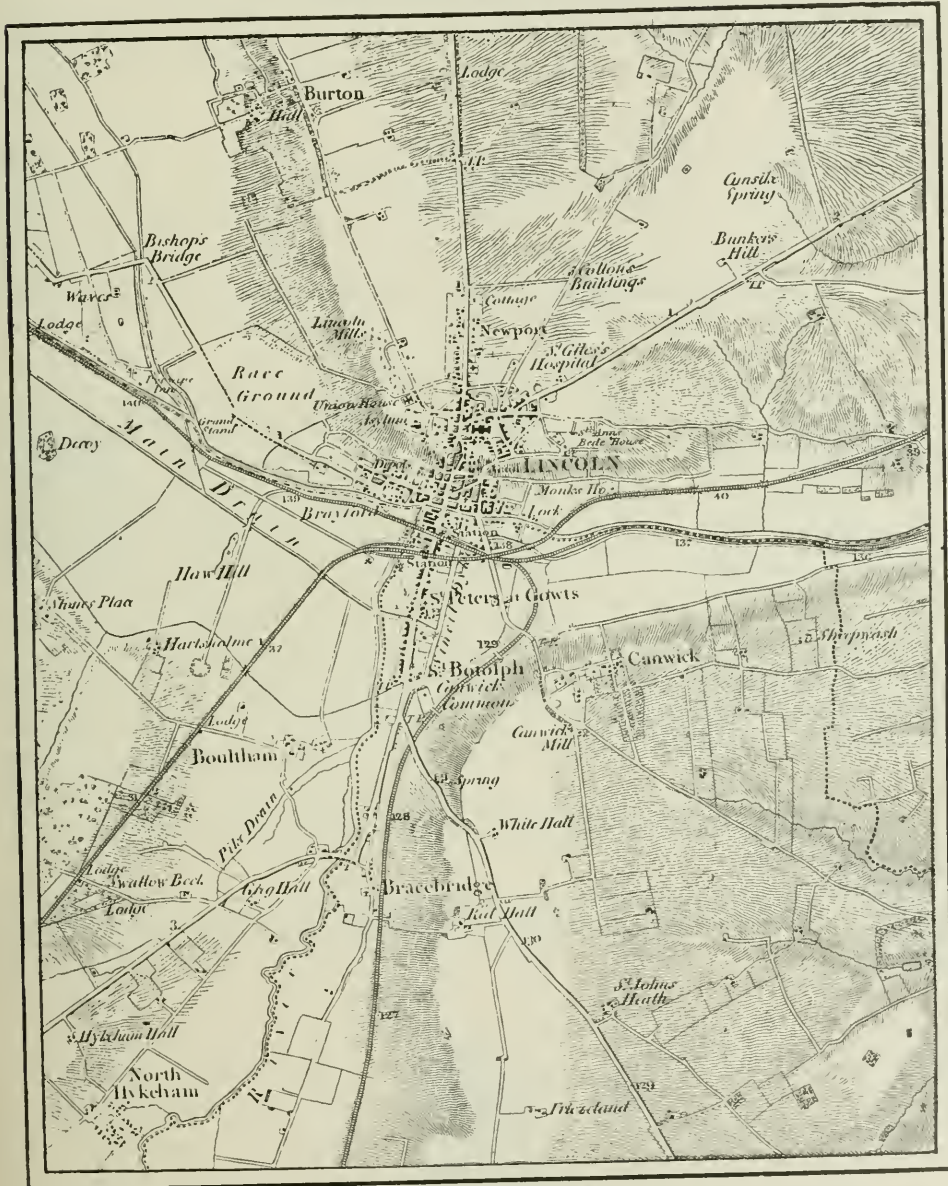


of *Grantham*. It was at the grammar school of *Grantham* that Sir Isaac Newton, a native of the neighbouring village of *Woolsthorpe*, received his early education. The borough boasts a fine parish church, has works for the manufacture of agricultural machinery, and carries on a profitable trade in corn, malt, and coal. Its neighbourhood is much frequented by fox-hunters.

In its onward course the Witham washes the city of *Lincoln*, superbly seated on a lofty ridge and the slopes of a hill which commands a view of the Fens. It is the *Lindum* of the Romans, by whom the "foss-dyke," which joins its crowded

Fig. 113.—LINCOLN.

From the Ordnance Map Scale 1 : 63,360.



harbour to the Trent, was dug out, and Ermine Street, which traverses the city from north to south, constructed. A gateway and portions of the Roman wall survive, and there is a castle built by William the Conqueror, and now used as a gaol and assize hall, but all other buildings are overshadowed by the superb cathe-

dral, which rises proudly upon the summit of the hill. In the early Middle Ages Lincoln was a place relatively of greater importance than it is now, and the only towns mentioned in the Domesday Book as having been superior to it were London and York; and although in course of time it became a city of monks, with fifty-two churches in the reign of Edward VI., it only maintained its eminent position until the discovery of coal and iron in Western England had deranged the natural balance of population; but even now it carries on a very considerable commerce, and employs several thousand workmen in making agricultural machinery.

That portion of Lincolnshire which has not yet been considered belongs to the basin of the Humber, or is drained directly into the German Ocean. *Gainsborough* is the principal town on the river Trent, which forms part of the western boundary of the county, and up which an "eagre," or bore, rushes with some impetuosity. Its harbour is accessible to vessels of from 150 to 200 tons burden, and the town has recently acquired some importance through the manufacture of agricultural machinery. *Epsworth*, the principal market town of the district of Axeholme, was the birthplace of John Wesley, whose father was rector of the parish. Descending the Humber, we reach the mouth of the Ancholme, on whose upper course is situated the important market town of *Brigg*, or *Glamford Brigg*, easily accessible by means of a navigation canal. Then follow *Barton-upon-Humber*, an ancient town, formerly strongly fortified; *New Holland*, opposite to Hull, with which it is connected by a steam ferry; and *Great Grimsby*, at the mouth of the Humber. The latter has grown into a place of very considerable importance since 1849, in which year the clearance of the choked-up harbour began. Space was thus gained for the construction of the present docks and piers, and the town now possesses all the requisites of a modern maritime port. Lines of steamers connect it with several continental markets, and trade has increased wonderfully. *Cleethorpe*, its neighbour, has grown into favour as a watering-place, but *Saltfleet* and other fishing villages farther south are little frequented, because the marshy coast is uninviting.

Louth is the most flourishing town at the eastern foot of the Wolds. *Alford*, with its "holy well," said to be efficacious in scorbutic complaints, lies to the south-east of it.





CHAPTER IX.

THE BASIN OF THE HUMBER.

(LEICESTERSHIRE, STAFFORDSHIRE, DERBYSHIRE, NOTTINGHAMSHIRE, YORKSHIRE.)

GENERAL FEATURES.



THE basin whose outlet is through the estuary of the Humber is the most extensive of the British Isles, for it exceeds in area the basins of the Thames and the Severn.* Yet England, to the north of the bay of the Wash and the estuary of the Mersey, is of small width, and the distance from the central water-parting to either sea is inconsiderable. But though the basin of the Humber is thus hemmed in between the "backbone" of England and the coast ranges, it stretches far to the north and south. Two rivers, the Trent, rising in the moorlands of Staffordshire, and the Yorkshire Ouse—the one coming from the south, the other from the north—combine as they fall into the winding estuary of the Humber, and discharge themselves into the North Sea.

In the south the basin of the Trent penetrates like a wedge towards the valley of the Severn, from which it is separated only by gentle undulations of the ground. In the north, however, the ground grows in elevation, at first forming heath-covered ridges rising above cultivated fields, and finally developing into the broad upland of the Pennine chain, which stretches far away to the borders of Scotland. The "Peak of Derbyshire" forms one of the vertebræ of this "backbone" of England. It is by no means a peak, as its name would imply, but a table-land bounded by steep scarps, remarkable for its caverns and subterranean passages, and rich in cromlechs. The Peak attains a height of 1,981 feet. Farther north the moorlands broaden out, but the depressions which separate the rounded masses of upland facilitate intercommunication between the two slopes of the chain.† The summits increase in elevation as we travel to the

* Area of the basin of the Humber (including Trent and Ouse), 9,550 square miles; basin of the Thames, 6,160 square miles; basin of the Severn, 4,350 square miles.

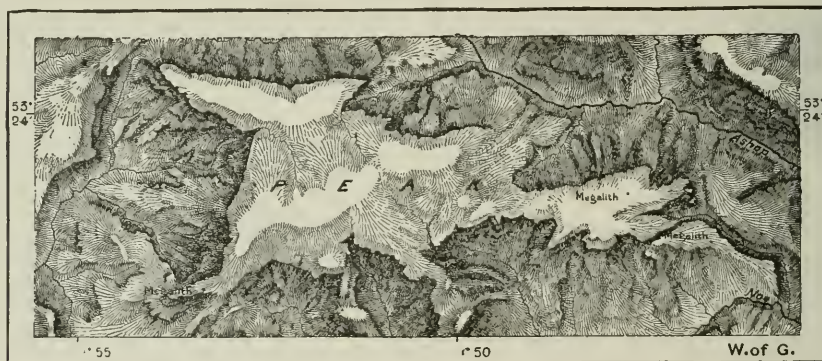
† The "passes" over the Pennine range vary in height between 450 and 660 feet, the latter being that of the pass through which runs the turnpike road from Huddersfield, to the north of the Holme Moss.

north, and culminate in the Whernside (2,414 feet), in Yorkshire, and Cross Fell (2,892 feet), on the borders of Durham. A transverse range connects the Pennine chain with the Cumbrian Mountains, which are higher still.

The scenery of the Pennine range is by no means inferior to that of the Malvern Hills. The higher summits, it is true, are covered with heather or peat, but their slopes are wooded or clad with succulent grasses. The finest oaks of all England shade the southern slopes of the hills of Derbyshire and Nottinghamshire. Delightful valleys penetrate the chain wherever we look, and the nakedness of the rocks enhances the beauty of the smiling landscapes which lie at their base. Derbyshire and the valley of the Yorkshire Ouse may fairly dispute with the Weald of Kent and the vale of Severn the claim of being considered the finest parts of England. Running water abounds in these hills, for the rains are abundant. Through every valley a winding rivulet, sparkling amidst the verdure, hastens along to pay its tribute to the "tranquil Ure, the flying Wharfe, or the

Fig. 114.—THE "PEAK" OF DERBYSHIRE.

Scale 1 : 110,000.



superb Ouse."* Caverns, some of them in the possession of miners in search of argentiferous lead, abound in this limestone region, and the water, charged with carbonate of lime, which trickles from their roofs, has formed innumerable stalactites, whose beauty delights the visitor. Some of these caverns have been explored by men of science, and the objects discovered in them have enriched the museums of the country. An old mine yielded the remains of a human being and of 3,750 animals, belonging to five different species, and amongst articles of human workmanship there was a precious design of a horse's head graven upon the bone of an animal.†

The uplands, which separate the basins of the Trent and Ouse from the North Sea, are pretty regular in their direction. The whole of this littoral region is formed of oolitic and cretaceous rocks, which strike north and south in narrow bands. Separated by the great fissure through which the Ouse and Trent find

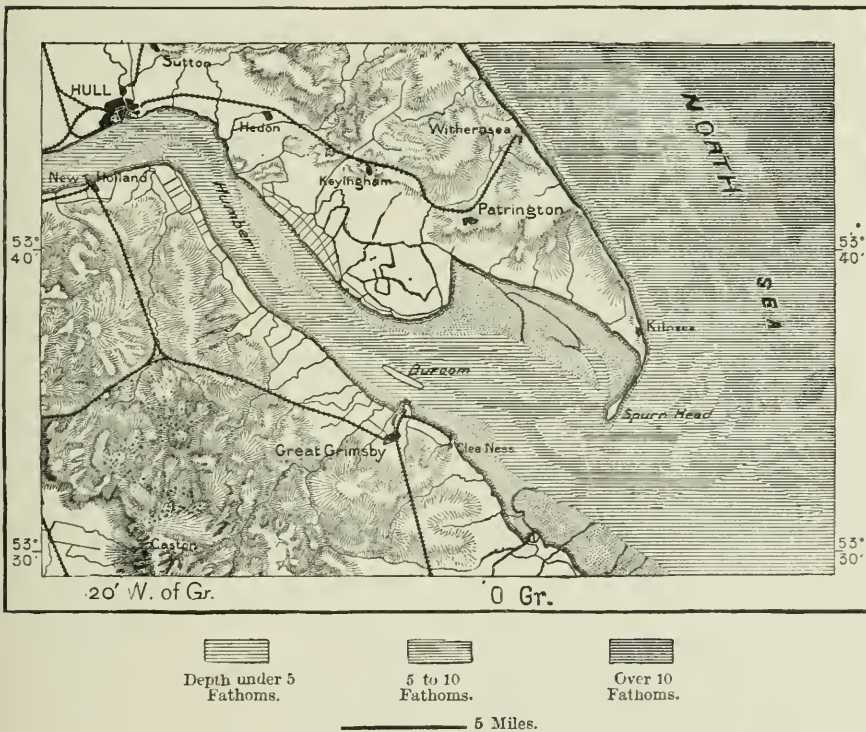
* Spenser, "Faerie Queen."

† W. Boyd Dawkins, *Journal of the Geological Society*, Feb., 1877.

their way into the sea, the hills rise once more to the north of the estuary of the Humber, and, trending round to the eastward, terminate in the bold promontory of Flamborough Head. To the north lie the wild and barren York Wolds, whose northern face is known as the Cleveland Hills. They are composed of liassic strata capped by oolitic rocks, and abound in picturesque scenery, and from their culminating summits afford at once a view of the distant vale of the Tees and of the sea studded with vessels. Here and there the more prominent heights are crowned with funereal mounds, locally known as *houes*,* and every position of strategical importance is defended by vast entrenchments. These entrenchments

Fig. 115.—THE MOUTH OF THE HUMBER AND PART OF HOLDERNESS.

Scale 1 : 450,000.



can still be traced for miles, and they converted the valley of the Derwent, at the back of Scarborough, as well as the whole of the peninsula which is bounded by the Humber in the south, into vast camps. The entrenchment near Scarborough is still known as the *Dane's Dyke*. Some of the barrows, or *houes*, on the Cleveland Hills are as much as 200 feet in length, of quadrangular shape, and placed due east and west. Skulls and flint and bronze implements have been found in them, and prove that they do not all belong to the same epoch. Rolleston, the archæologist, is of opinion that some of the skulls resemble those of the Veddahs of Ceylon.

* *Hög*, in Old Swedish or Jutic; *høi* in Danish.

The coast district, which juts out like an eagle's beak between Flamborough Head and the estuary of the Humber, and terminates in Spurn Head, is known as Holderness. The whole of this country is of recent formation, and differs altogether from the rocky hills away in the interior. To geologists it is classic ground, owing to the grand scale on which it illustrates erosive phenomena. The boulder clay and alluvial till form a sea-cliff, here rising to a height of some 60 feet, and extending more than 30 miles along the coast. Landslips and "shoots" of detached masses of rocks are frequent along this coast; the waves undermine the foot of the cliffs, and spread their triturated waste over the beach. Not a storm, not an exceptionally high tide, but the coast is worn away, and houses, villages, and even towns disappear. Ravenspur, at one time a rival to Hull, and a port so considerable in 1332 that Edward Baliol and the confederated English barons sailed from it with a great fleet to invade Scotland, has long since been devoured by the merciless ocean. The villages of Hyde, Auburn, Kilnsea, Upsal, and many others have shared the same fate; and with them have disappeared the lakes which formerly studded the plateau, and one of which, Sandley Mere, filled a cavity in the alluvial soil abounding in the tusks of elephants. Extensive sands, dry at low water, occupy the places of these towns, but a fine rock, known as the Matron, still marks the site where the cliffs rose within historic times.*

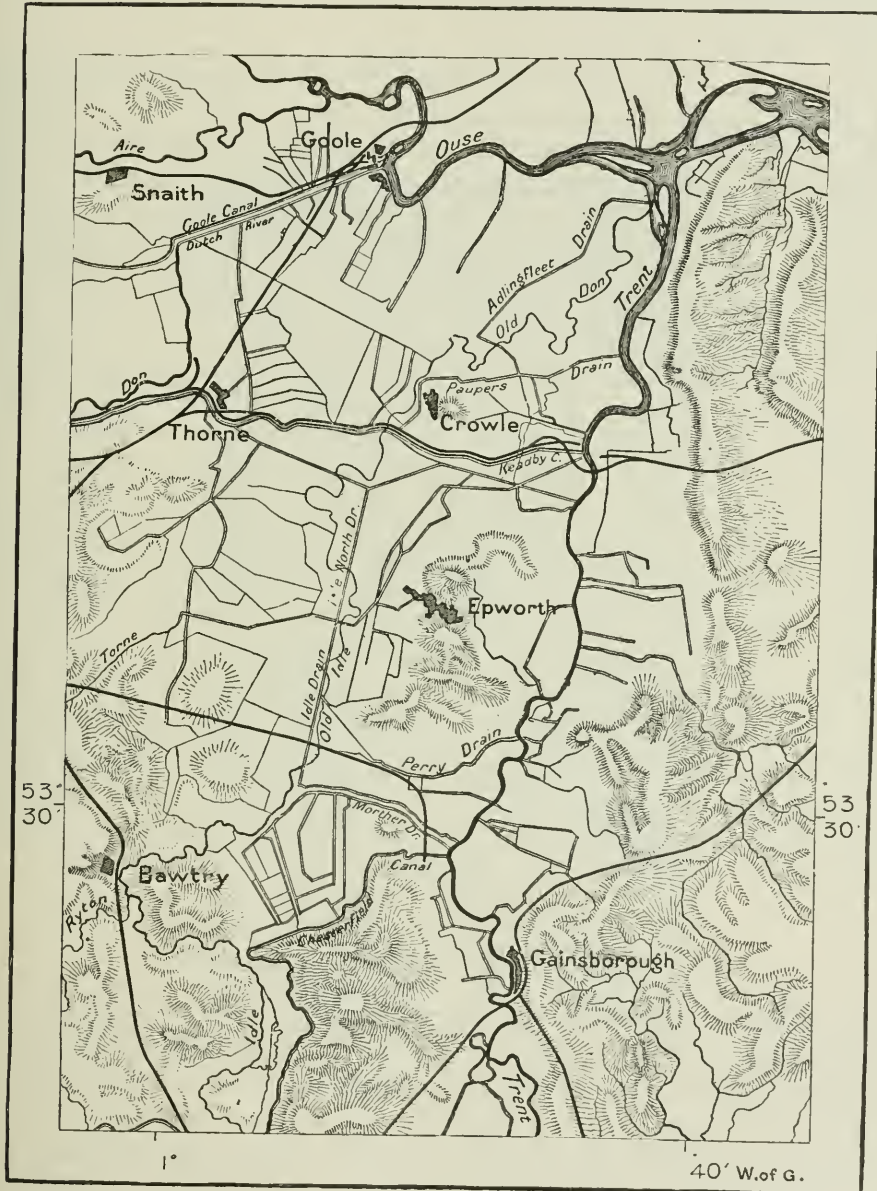
A phenomenon of an inverse nature may be observed along the banks of the Humber, where the waste of the cliffs of Holderness and the alluvial soil brought down by the rivers cause the land and the banks in the estuary to grow. Sunk Island, which about the middle of the seventeenth century had an area of only 10 acres, and was separated by a navigable channel, 1,600 yards wide, from the shore, is now firmly attached to the mainland. It forms the apex of a peninsula, 12 square miles in extent, jutting out opposite Great Grimsby, and its rich meadows are protected by dykes against the encroachments of the sea. Similarly wide tracts formerly covered by the sea have become dry land along both banks of the river above Hull, but there nature has been guided in her work by the genius of man. The plain in which the Ouse and Trent mingle their waters was formerly a lake, which extended in rear of the littoral ranges until it was drained by the rivers named finding an outlet into the Humber. Above the swamps which then took the place of the lake there rose the isles of Axholme, Wroot, Crowle, and others, and most of the inhabitants of the country established themselves upon these more solid spots to escape the pestilential vapours rising from a half-drowned country. Since the Middle Ages these swamps have been drained, and here, as in the fenny land around the Wash, it was the Dutch who initiated the inhabitants into the art of the hydraulic engineer. One of the principal drains is still known as "Dutch River," and recalls the services rendered by these foreigners. The whole of the country is intersected now by canals and drains, and it is difficult to trace the old channels of the Don and Idle, which formerly flowed slowly through a plain having no regular slope. One of the first objects of the engineers was to provide a natural outfall for the rivers, and the alluvial soil brought down in large quan-

* Philipps, "Rivers, Mountains, and Sea-coast of Yorkshire;" Pennant, "Arctic Zoology."

tities by the Trent enabled them to attain this object, by spreading the soil over the more inland parts of the plain, whilst deepening the drains which intersect the

Fig. 116.—WARPED PLAIN OF THE OUSE AND THE TRENT.

Scale 1 : 300,000.



seaward regions. This system of "warping" proved as successful here as it had done in Italy. The lowlands along the coast are still known as "marshes," but their soil is as firm as that of the neighbouring inland districts. Pure water was

the only thing needed to render this region a fit place of residence for human beings, and that need has been abundantly supplied by artesian wells. A layer of clay about 25 feet in thickness underlies the surface soil for 50 miles along the coast and 10 miles inland, so that all that is requisite to be done in order to obtain pure water is to bore through this clay, when a fountain will burst forth, sometimes rising to a height of 10 feet.

The physiognomy of the towns and villages of a considerable portion of the basin of the Humber has undergone a singular change in the course of the nineteenth century, and perhaps nowhere is this change more striking than in Western Yorkshire. Quiet villages, unfettered rivulets, are found no longer. The valleys are filled with noisy factories; every stream of water is confined within bounds to set in motion wheels and turbines; the roads are black; and even the atmosphere is filled with particles of soot. The number of inhabitants is tenfold—nay, hundredfold in certain districts—what it used to be. Manufacturing towns have sprung from the soil where at the beginning of the century the eye beheld only open moors or forests. These changes are due to the same causes which have brought about similar results in other parts of England. The counties at the foot of the Pennine chain have learnt to appreciate the wealth which they possess in their rocks—coal, iron, lime, and building stone—and the inhabitants of Yorkshire, at all events, have set themselves to utilise these treasures with an eagerness far surpassing that of other Englishmen. The people of Yorkshire are, indeed, noted for their industry, activity, and business intelligence, and few are their equals in the art of making money. Conservative though they be—as is proved by an adherence to their ancient dialect—they have nevertheless, in the course of becoming a manufacturing people, greatly changed their time-honoured customs. And this perilous social evolution, whilst it enriched thousands, has condemned hundreds of thousands to the precarious existence of proletarians. How great the contrast between the factory hands of the West Riding and their ancestors, whose hero was merry Robin Hood!

TOPOGRAPHY.

STAFFORDSHIRE lies wholly within the great central plain of England, and its surface, except in the north, where it is broken by barren hills, including the Axe Edge Hill (1,810 feet), Mow Copt (1,101 feet), Weaver Hill (1,154 feet), and other outliers of the Pennine chain, is slightly undulating, and upon the whole fertile. The river Trent rises near the northern boundary of the county, and passes through its centre, receiving on its way several tributaries, the principal of which are the Dove, which forms the eastern boundary of the county, and the Tame, which drains the south.

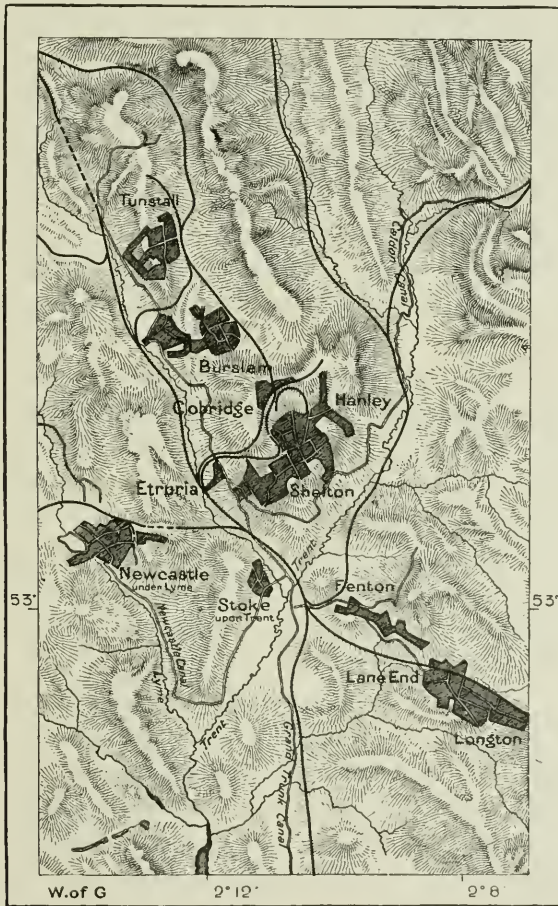
The valley of the Trent is noted for its fertility, but Staffordshire is essentially a manufacturing and mining county. The distribution of the bulk of its population has been determined by the existence of coal and iron, and there are conse-

quently two great centres of industry—the one in the north, in the coal basin of North Staffordshire, the other in the south, around Dudley and Wolverhampton.

The former of these districts is drained by the nascent Trent, and is known as that of the Potteries, for the manufacture of earthenware has been carried on there from immemorial times, and it furnishes most of the china which England exports to foreign countries, much to the increase of its national wealth. *Stoke-upon-Trent*,

Fig. 117.—THE DISTRICT OF THE POTTERIES.

Scale 1 : 80,000.



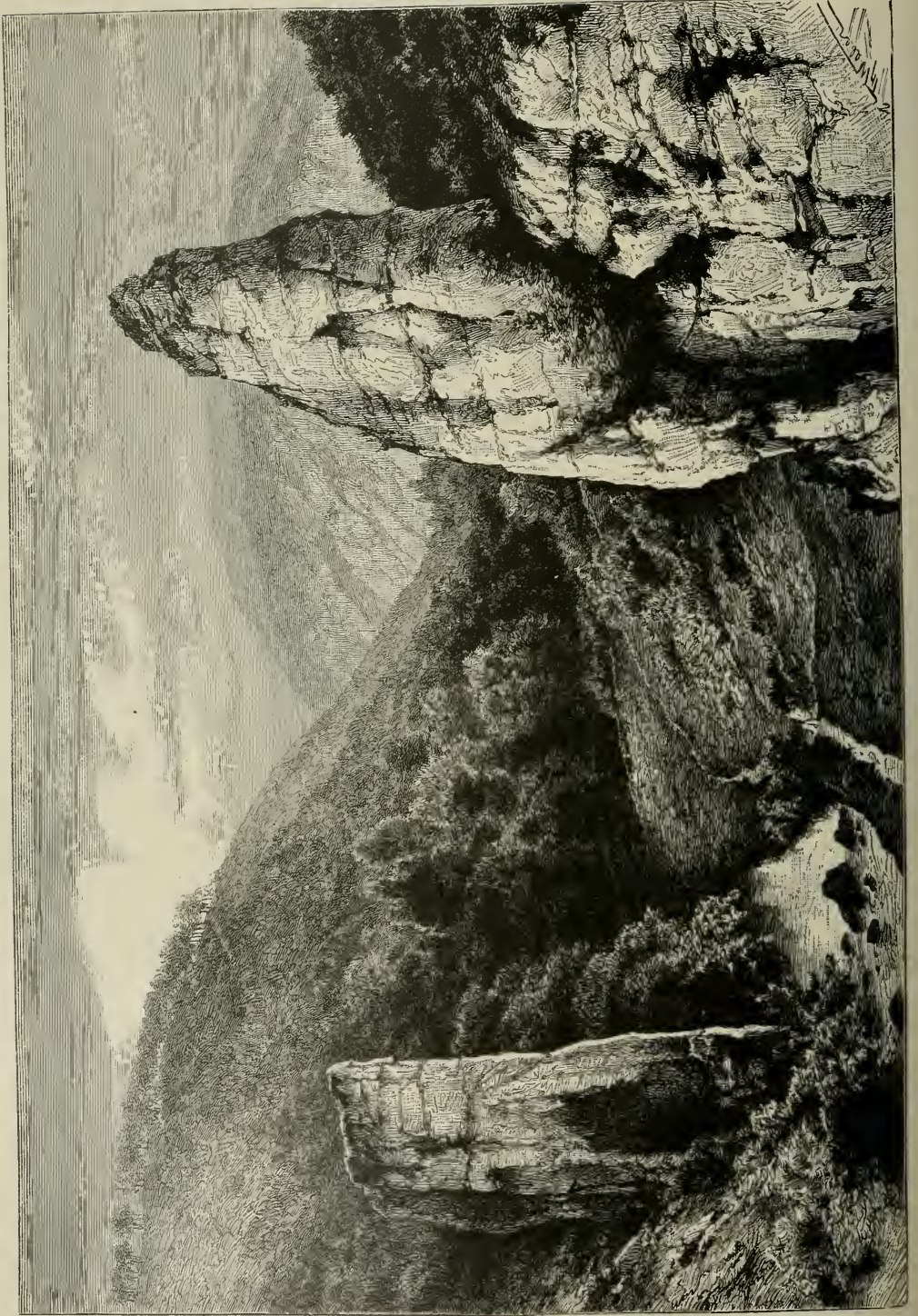
1 Mile.

the metropolis of this district, a dingy and straggling town, has raised monuments to Wedgwood and Minton, the two men who by their genius have most contributed towards its prosperity. It was at *Etruria*, a couple of miles to the north of Stoke, that Josiah Wedgwood established his factory in 1771, in the hope of being able to equal one day the productions of the master potters of Tuscany. It was he who taught England the art of producing a beautiful cream-coloured porcelain, such as had been manufactured for a short time in the sixteenth century at the French village

of Oiron, but the secret of which had been lost. Wedgwood and Minton bestowed equal attention upon form and decoration, and the ware produced by them, with the aid of artists of high repute, far surpasses in taste the articles ordinarily made by English manufacturers. We almost marvel that these smoky towns should have turned out such beautiful majolicas, and porcelain so tastefully decorated. Recently a school of art adapted to ceramic manufacture, and known as the Wedgwood Institute, has been opened at Burslem, the birthplace of Wedgwood. This building is decorated with terra-cotta, which bears witness to the high state of perfection attained by the local manufacture. The population concentrated around Stoke-upon-Trent already approaches 300,000 souls, and it increases rapidly, for the coal basin of North Staffordshire, despite its small extent, possesses inestimable advantages in its alternation of coal seams and beds of iron ore. The remaining towns of the Pottery District are *Hanley*, half-way between Stoke and Burslem, which is as much dependent upon iron works as upon potteries; *Tunstall*, *Small-thorne*, and *Kidsgrove*, the latter a mining town, close to the northern boundary of the county. *Fenton* and *Longton* (with *Dresden*), which have potteries and earthen works, lie to the south-east, whilst *Newcastle-under-Lyme*, which carries on a great trade in hats and shoes, and near which are the Silverdale Iron Works, lies to the west.

Leaving the district of the Potteries behind us, we enter the agricultural portion of the county, and soon find ourselves in the midst of fields and woods, and able to breathe a pure atmosphere. The towns are few and far between. *Stoke*, on the banks of the Trent, is dependent upon its breweries and the manufacture of boots and shoes. *Stafford*, the county town, on the Sow, a tributary of the Trent, has several ancient timbered houses, two interesting churches, and a shire-hall. The castle, on a hill, commands a view of the Welsh hills. Izaak Walton, the celebrated English angler, was born here. *Rugeley*, on the Trent, is noted for its horse fairs. It adjoins Cannock Chase, an upland tract, in which a little coal, remarkably fine in quality, is found. Lichfield lies away from the river on a navigable canal. *Tamworth*, on the Tame, which flows past Birmingham and pays tribute to the Trent, is the centre of a rich grazing district. Several of the towns named are seats of industry, but in their general aspects and mediæval buildings they contrast strikingly with the great manufacturing district which lies farther west. *Lichfield*, an episcopal see, boasts a cathedral which, though small, is exquisitely beautiful. It was built 1128—53. St. John's Hospital is a curious specimen of the domestic architecture of the fifteenth century, whilst the grammar school has acquired fame through Addison, Garrick, Bishop Newton, Dr. Johnson, and other celebrated pupils who attended it. Dr. Johnson was born at Lichfield, and a statue has been raised in his memory.

Below the confluence of the Trent and Tame there rises the important town of *Burton-upon-Trent*, famous throughout the world for its bitter ale, said to owe its peculiar qualities to the carbonate of lime contained in the water used by its brewers. There are six large and about twenty-four small firms at Burton, annually producing between them about a million and a half barrels of beer.

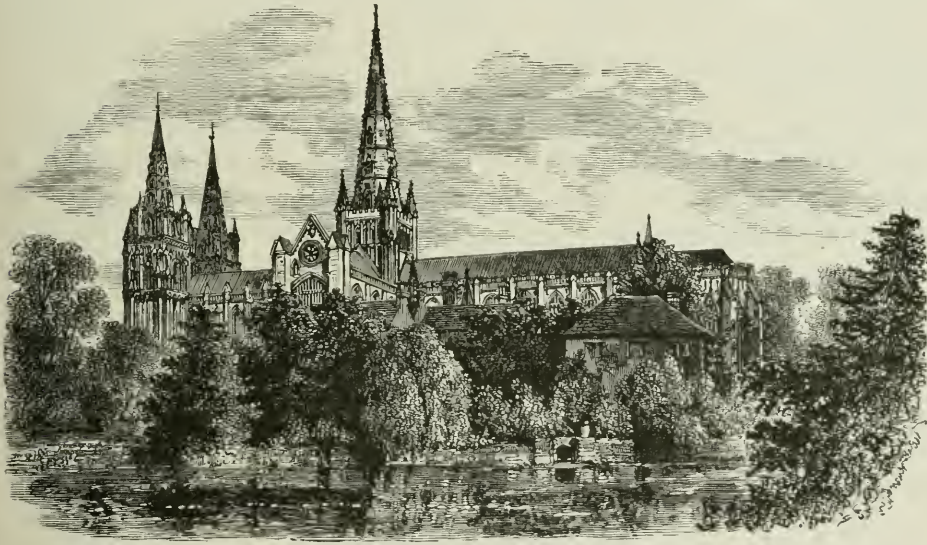


ILAM ROCK, DOVEDALE.

The Dove joins the Trent a few miles below Burton. In its upper course it flows through a narrow dale, where umbrageous woods, naked rocks, caverns, and a sparkling rivulet combine to form some of the most picturesque scenery in England. The Churnet is tributary to the Dove, and hardly yields to it in romantic beauty. On its banks rises Alton Towers, the princely mansion of the Earl of Shrewsbury and Talbot. Higher up in the valley limestone is quarried and iron ore won. *Leek* is a considerable town near the source of the Churnet, where silk-thread spinning is extensively carried on. *Cheadle*, in the moorlands to the west of the Churnet, is a small market town. *Uttoxeter* is the principal town on the Lower Dove. The inhabitants engage in the manufacture of clock cases and agricultural machinery, and in cork-cutting.

There now remains to be noticed the great manufacturing and mining district in South Staffordshire known as the "Black Country." Though hardly 150

Fig 118.—LICHFIELD CATHEDRAL.



square miles in extent, this district (including the adjoining town of Birmingham, which is virtually its capital) supports more than a million inhabitants. It owes its prosperity to its mineral treasures. Coal, iron, the limestone required for fusing it, and even the clay from which the bricks for lining the furnaces are made, are found here in juxtaposition. Many discoveries of great importance have been made in the manufactories of this district, and especially in the Soho Works, near West Bromwich. The coal found here is admirably adapted for the manufacture of tar and aniline, and is largely used for these purposes. The principal coal seam of the basin has a thickness of 10 yards, and has proved a source of great wealth. Unfortunately it is nearly exhausted. There remain now only 100,000,000 tons of coal, which at the present rate of consumption will hardly suffice for another century, at the close of which the manufacturers will have to migrate to a more favoured locality.

The best view of the Black Country is from Dudley Castle, which occupies an eminence in its centre. Dudley, however, lies within a detached portion of Worcestershire (see p. 105), and the most important Staffordshire town in the district under notice is *Wolverhampton*, an old town in a commanding position, the centre of the lock trade, and producing also all kinds of hardware, and japanned and *papier-mâché* articles. The town is known also in the annals of aëronautics and meteorology, for it was here that Glaisher and Coxwell made their experimental trip into the air, which took them to a height of probably 36,000 feet—an altitude never yet exceeded. *Walsall* is distinguished for its saddlery. *West Bromwich*, which is nearer to Birmingham, manufactures hardware of every description, besides glass and gas. These are the principal towns of the district. Their satellites engage in the same industries, all alike depending upon the coal and iron mines which are being worked in their vicinity. *Heathtown*, *Wednesfield*, *Sedgley*, and *Tipton* lie in the west, around *Wolverhampton* and towards *Dudley*; *Willenhall*, *Darlaston*, *Bilston*, and *Wednesbury*—the latter a place of great antiquity—occupy, with *Walsall*, the centre of the district; *Brierley Hill*, *Rowley Regis*, and *Quarry Bank* are near the Worcestershire border; whilst *Smethwick* and *Harborne* may almost be designated suburbs of Birmingham (see Fig. 60).

DERBYSHIRE is one of the most beautiful counties of England. Its northern part, culminating in the Peak, is full of moors and mountains, intersected by narrow valleys, and dells bounded by fantastic cliffs. Towards the south the hills decrease in height, until they sink into the wide and fertile vale of the Trent, which crosses the southern portion of the county. The great river of Derbyshire, however, is the *Derwent* (*Der Gwent*, i.e. Beautiful River), which rises in the Peak, and, flowing through the centre of the county, separates the coal and iron district to its east from the more purely agricultural district to its west. In addition to coal and iron, Derbyshire yields lead, and is famous for its spar, and its quarries of marble, gypsum, &c. The manufactures are varied and of considerable importance.

Derby, the ancient county town, has attained considerable importance as a seat of industry. It was here J. Lombe established the first silk-mill in England, in 1717; but if contemporary evidence can be accepted, the Englishman who learnt the secret of the manufacture in Italy died of poison administered by his Italian instructors.* This old factory still exists, and many others have been added since. In addition to hosiery, *Derby*, and its suburb of *Litchurch*, engage in the manufacture of porcelain and of spar ornaments. It is here the Midland Railway Company has established its head-quarters, its workshops occupying a considerable area. A monument has been erected to H. Cavendish, the discoverer of the chemical constituents of air, in the church of All Saints. Flamsteed, the astronomer, was born in the neighbouring village of *Denby*.

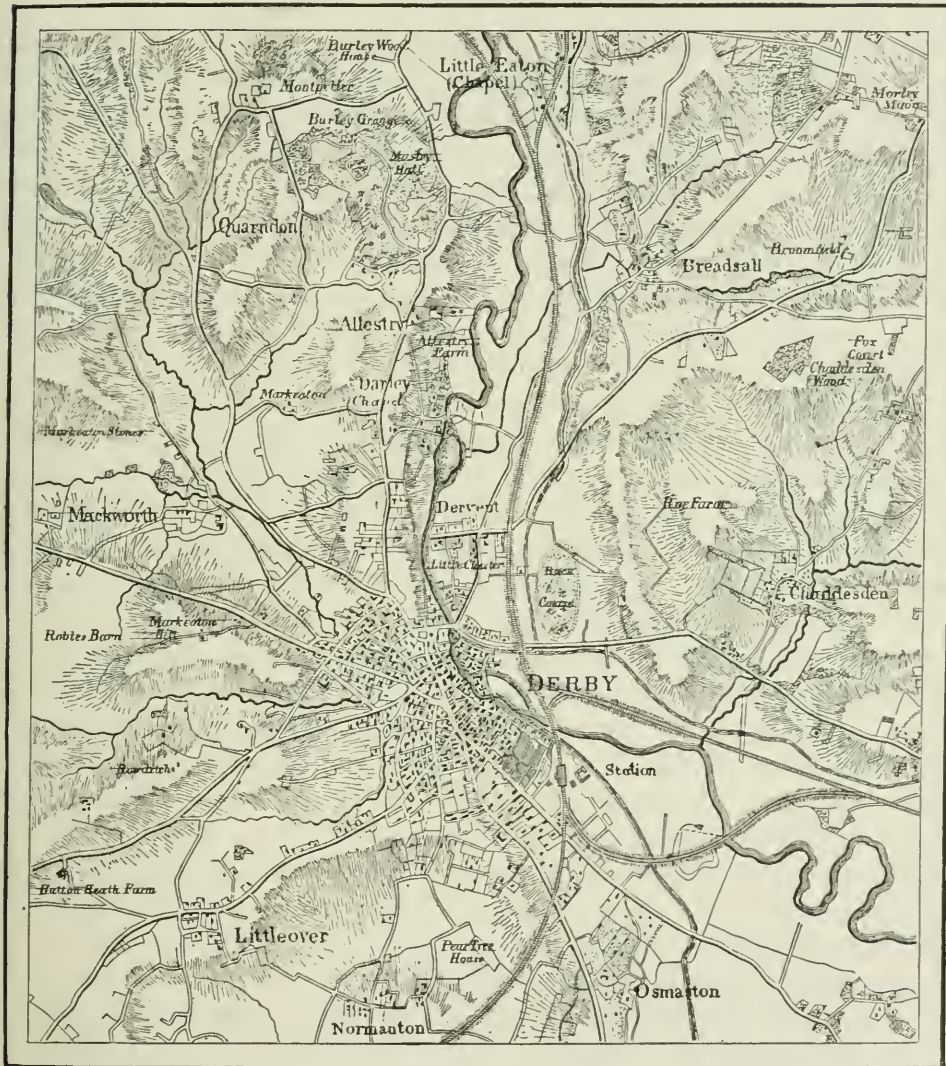
Ascending the *Derwent*, we reach *Belper*, whose inhabitants find employment in cotton and hosiery mills and in nail-making. Still proceeding on our journey up a valley which increases in beauty with every step we take, we reach *Matlock*

* Ch. Dupin, "Force commerciale de la Grande Bretagne."

and its baths, the centre of the most romantic limestone district in which the Derwent clears its way through a succession of grand defiles, one of which is commanded by the superb High Tor, rising to a height of 396 feet. The mineral

Fig. 119.—DERBY.

From the Ordnance Survey. Scale 1 : 63,366.



waters of Matlock are largely charged with carbonate of lime, and they quickly petrify any object placed in them.

A few miles above Matlock we reach the confluence of the Wye and the Derwent. On the former, beautifully seated upon a wooded slope, rises the ancient town of *Bakewell*, near which is Haddon Hall, perhaps the finest specimen of a baronial dwelling of the fifteenth century to be met with in England. At the head of the

Wye, in a bleak but healthy situation 1,100 feet above the level of the sea, stands *Burton*, which has been a place of resort for three hundred years on account of the virtues of its mineral waters, but owes something, too, to the vicinity of the great city of Manchester. Meadows, parks, and avenues of trees environ the sumptuous dwellings set apart for invalids, whilst, far below, the Wye courses through a savage defile, the entrance to which is guarded by the Chee Tor, a noble rock 300 feet in height.

Returning to the Derwent, we soon reach *Chatsworth*, the noble seat of the Duke of Devonshire, in the midst of a park 11 miles in circuit. The house contains a precious collection of paintings, statues by Thorwaldsen, Canova, Schadow, and Gibson, and a valuable library. The great conservatory in the gardens was built by Sir Joseph Paxton, the designer of the Crystal Palace, and one of the fountains plays to a height of 267 feet. Higher up on the Derwent, in a charming situation, stands *Hathersage*, where needles and fishing-tackle are made, and beyond we reach *Castleton*, in the very heart of the Peak. Its neighbourhood abounds in caverns, that of the Peak being traversed by an underground river. A little lead is won in the vicinity.

That portion of Derbyshire which lies beyond the Peak, towards the north-west, is drained into the Mersey. *Glossop*, *Hayfield*, and other places in this neighbourhood carry on cotton-spinning, and depend naturally upon Manchester.

There are but few towns in Western Derbyshire. *Wirksworth* and *Winster* are the principal places of a lead-mining district of small importance, to the west of Matlock. *Ashbourne*, in the fertile valley of the Dove, and the centre of a grazing district, carries on an important trade in cheese, wool, and corn.

Far more populous is the great industrial and mining district of Eastern Derbyshire, between the Derwent and the Erwash, the northern portion of which is tributary to the river Don. *Chesterfield*, a busy town remarkable for its "crooked" or leaning spire, has coal mines and iron works, and manufactures lace, hosiery, and woollen stuffs. George Stephenson, the engineer, died here in 1848, and lies buried in Trinity Church. Farther south are the towns of *Claycross*, *Alfreton*, *Ripley*, *Heanor*, and *Ilkeston*, all of them with coal mines, most of them with iron works, and some of them with hosiery-mills. Ilkeston rejoices, in addition, in the possession of mineral springs.

LEICESTERSHIRE is almost wholly comprised within the basin of the Soar, which flows northward through its centre, and joins the Trent on the northern border of the shire. Its surface is for the most part undulating, and Bardon Hill, in Charnwood Forest, to the west of the Soar, although the culminating summit of the county, does not exceed a height of 853 feet. To the east of the Soar the country rises gently towards the oolitic uplands of Rutland and Northamptonshire, whilst in the south-west the plain of Leicester extends across the borders of the county into Warwickshire. A small coal basin lies towards the north-west. Leicestershire is famous for its horses, cattle, and sheep, and is the great centre of the hosiery manufacture.

Leicester, the county town, occupies the site of the Roman city of *Ratae*, and

here still exist portions of Roman walls and other ancient remains, carefully preserved in the local museum. The central position of the town on the navigable Soar has enabled it to play an important part in the history of England. It was here that Richard III. and Cardinal Wolsey died. But it is more especially from the beginning of this century that Leicester has grown into a large town, its population since 1850 having more than doubled. This increase is due almost solely to the development of the hosiery trade, of which Leicester is the headquarters, and which employs many thousand hands throughout the county. The famous Leicester sheep, which produce long combing wool, pasture in the valley of the Upper Soar, towards the old towns of *Hinckley* and *Market Bosworth*, near which the Earl of Richmond defeated Richard III. (1485), and on the downs stretching along the southern confines of the shire. The only places in this remote part of the county are *Lutterworth*, on a feeder of the Avon, of which John Wickliffe was rector (1375—84), and *Market Harborough*, on the Welland, a favourite resort of hunting-men during the winter. Indeed, the openness of a great part of the county is favourable to sportsmen, and *Melton Mowbray*, on the Wreke, which joins the Soar from the east, is the great head-quarters of fox-hunting, and its stables afford accommodation to five or six hundred horses. The town, moreover, is noted for its pork pies, and exports the famous Stilton cheese made in its environs. *Quorndon*, on the Soar, within a short distance of the granite quarries of *Mount Sorrel* and the lime-kilns of *Barrow*, is the head-quarters of the Quorn Hunt. *Loughborough*, on the Lower Soar, and the much smaller town of *Castle-Donington*, farther north, engage in the manufacture of woollen hosiery, and the former has in addition a bell foundry and locomotive factory.

Ashby-de-la-Zouch retains its ancient name, half Danish, half Norman. It is the centre of a coal basin. *Whitwick*, to the east of it, on the fringe of Charnwood Chase, is remarkable for the modern Roman Catholic abbey of Mount St. Bernard, the first establishment of the kind completed in England since the Reformation.

NOTTINGHAMSHIRE in the main consists of the broad and fertile plain of the Trent, which opens out upon the alluvial lowland at the head of the Humber, and of a broken hill country which occupies the western portion of the shire. The soil in the latter is sandy and gravelly, and the whole region from the Trent to Worksop, in the basin of its tributary the Idle, was formerly comprehended within Sherwood Forest, the principal scene of the adventures of Robin Hood and his companions. Coal occurs along the western boundary, and the manufacture of bobbinet, or lace, and of hosiery, employs thousands of hands.

Nottingham occupies a steep declivity overlooking the Trent. It is a place of great antiquity, with a castle built by William the Conqueror, now converted into an art museum. The Standard Hill, upon which Charles I. unfurled the royal standard in 1642, adjoins this ancient stronghold. Like Leicester, the county town of Nottinghamshire has grown into a great seat of industry, famous for its hosiery, bobbinet, and machinery. The same branches of industry are carried on at the neighbouring towns of *Sneinton*, *Lenton*, *Basford*, *Hucknall Torkard*, and *Arnold*.

Newark-upon-Trent is a town of breweries, like *Burton*, and the capital of the agricultural portion of the county, where great corn and cattle markets are held. King John died within the castle whose ruins crown a neighbouring hill. *Bingham* is a market town in the fruitful vale of *Belvoir*, which stretches across the southern boundary of the county into *Leicestershire*, and is named after *Belvoir Castle*, the stately residence of the Duke of *Rutland*.

Mansfield and *Sutton-in-Ashfield* are the principal towns in *Sherwood Forest*. Collieries and quarries are near them, and hosiery is manufactured. *Newstead Abbey*, farther south, in the midst of the "Forest," is doubly interesting on account of its ivy-clad façade of the twelfth century, and its association with Lord *Byron*. *Worksop*, in the basin of the *Idle*, is a quiet country place, doing a large trade in malt. Near it are a colliery and several noble parks. *Retford*, the centre of a rural parliamentary borough on the *Idle*, carries on a considerable trade in corn and malt.

YORKSHIRE is by far the largest and most important county of England. It extends along the German Ocean from the bay of the *Tees* to the mouth of the *Humber*, and stretches inland to the summit of the *Pennine chain* and beyond. Politically the county is divided into the city of *York* and its *Ainsty*, and the three districts called the *North*, *West*, and *East Ridings*. Geographically, however, it consists of several well-defined regions, and of these the fruitful vale of *York* is by far the most extensive and important. This vale, or plain, extends from the southern confines of the county, beyond the river *Tees*, into *Durham*. It is drained by the river *Ouse* and its tributaries. On the east the fertile vale of *Pickering* opens out into it like a huge bay, extending to the sea near *Scarborough*, and separating the wild oolitic moors of *North Yorkshire* from the chalky wolds of the *East Riding*. These latter form a screen around the fertile alluvial tract of *Holderness*, at the mouth of the *Humber*.

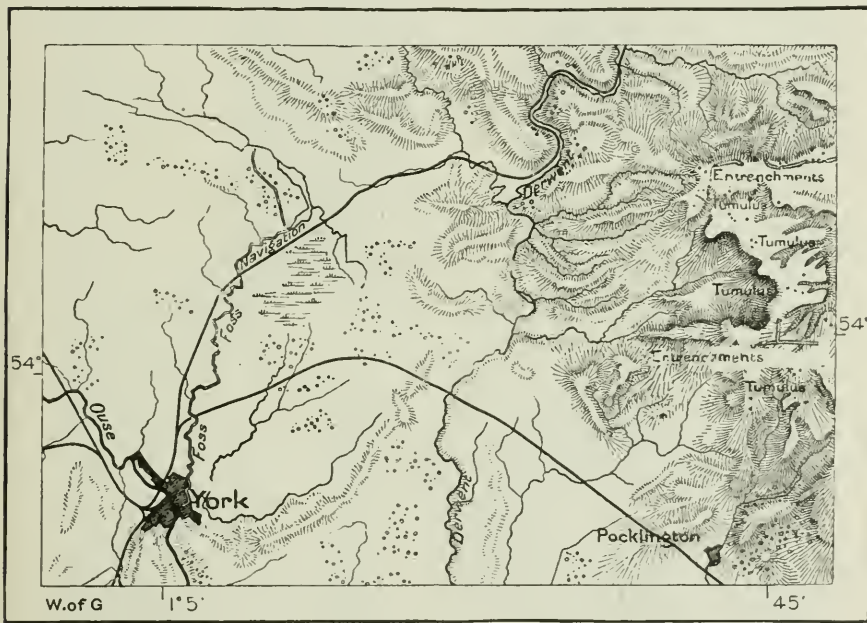
Western *Yorkshire* consists of wild moorlands, which attain their highest elevation in the *Craven district* in the north, and are intersected by valleys renowned for their picturesque scenery. As we proceed south the hills decline in height, and gradually merge into monotonous moorlands. But what South-western *Yorkshire* lacks in scenery is amply compensated for by the mineral treasures, coal and iron, which are hidden in its soil, and which have given birth to one of the busiest manufacturing districts of the world. *Yorkshire* holds the first place for its woollens, but the manufacture of iron and of every description of ironware also furnishes occupation to thousands, and some of the cotton-mills rival those of *Lancashire* in their huge proportions. The county holds, moreover, a prominent position for its agriculture. Its horses, cattle, and sheep are in high estimation, and the hams of *Yorkshire* are famous throughout England.

Right in the centre of the great fertile plain which forms so striking a physical feature of the county, admirably situated as a place of commerce on the great natural high-road which connects England with Scotland, and on the navigable *Ouse*, rises the ancient city of *York*. As long as the subterranean treasures

in the western moorlands remained untouched, York was able to maintain its commercial supremacy. It is only natural that the great north road, instead of following the sinuosities of the coast-line, should take a more direct course at some distance inland. Leaving the Fens around the Wash to the east, the road descends the valley of the Trent, and then skirts the marshes, in the midst of which the water of the Trent mingles with that of the Ouse. Having followed the latter as far as the point where it turns abruptly to the south, it becomes necessary to cross to the other bank, in order to avoid a long *détour* to the west. It was at this natural crossing-place that the Brigantes had founded their capital of *Eburac*, or *Eborac*, which subsequently expanded into *Eboracum*, the most important

Fig 120.—YORK.

Scale 1 : 286,000.



5 Miles.

Roman colony in Britain. It was here Septimius Severus died in 211. The political authorities of the Empire were in course of time superseded by the powers of the Church. Early in the seventh century York became the seat of a bishop, and subsequently of an archbishop, who disputed with his rival of Canterbury the primacy of all England. York and London are the only cities in England whose chief magistrate bears the title of Lord Mayor.

A few Roman foundations may still be traced at York, but all Roman buildings have disappeared, and the many curious edifices of the city belong to the Middle Ages. A tower, built by William the Conqueror upon Roman foundations, rises within the castle precincts, by the side of the modern County Court and gaol. Ancient walls, nearly 3 miles in circuit, still surround the city, and afford

pleasant walks. The minster, which rises on the highest ground within them, is not the structure of a single age, but nevertheless exhibits a remarkable unity of design. Its west front fully deserves its reputation, but the two towers which

Fig. 121.—YORK MINSTER.



flank it, as is the case with most of the old English cathedrals, are not sufficiently lofty in proportion to the size of the nave. York, as compared with the more modern towns in the manufacturing district, rejoices in the possession of greater wealth bequeathed by the past. Its museums are more interesting, its scientific

and literary life more active, and its individual character more strongly marked. York, indeed, by its general physiognomy, is the most English town of all England. Flaxman, the sculptor, was born here. The battle of Stamford Bridge (1066), between Harold of England and Harald Hardrada of Norway, was fought to the east of York, on the Derwent; that of Marston Moor (1644) about 7 miles to the west.

Tadcaster, the Roman *Calcaria*, lies 8 miles to the south-west of York, and near it is the field of the battle of Towton, fought in 1461 between King Edward, of York, and the Lancastrians, in which the latter were defeated, with a loss of 40,000 men. The fight was thickest in the field still called the "Bloody Meadow." In a sweet-brier hedge by its side the white rose now mingles with the red rose, and after having hurried thousands into a bloody death, these flowers have become symbols of peace.

Vessels of more than 100 tons burden ascend the Ouse as far as York. Those of greater size only proceed to *Selby*, a place of commerce, with a magnificent abbey church, or to *Goole*, the great rival of Kingston-upon-Hull. Goole, close to the confluence of the "Dutch River" with the Ouse, is a shipping port of considerable importance. It imports fruit and vegetables from Belgium and the Netherlands, and exports iron, cloth, and building stones.

Ascending the river Don, which traverses the southern portion of the plain of York, we pass *Thorne*, a market town of the Isle of Axholme, and reach *Doncaster*, the *Danum* of the Romans, and anciently the capital of the county. It is a quiet town, contrasting with the busy hives of industry to the west of it. Only once in the year, during the race week in September, is it stirred into life, but it then attracts pleasure-seekers and sporting-men from the whole of England. The modern Gothic church of Doncaster is one of the finest works of Sir Gilbert Scott. The Great Northern Railway works, for the manufacture of carriages and locomotives, are close to the town.

Pickering lies in the centre of the vale named after it, which is drained by the Upper Derwent. *Malton*, lower down on that river, is a place of some importance. Near it, on a height overlooking the river, rises Castle Howard, the magnificent seat of the Earl of Carlisle, containing a noble collection of works of art.

The York Moors occupy the north-western portion of the county, rising boldly above the vales of York and Cleveland, and presenting picturesque cliffs towards the German Ocean. The greater part of this wild country is given up to sheep grazing, and the narrow valleys which intersect it are but sparsely peopled. Within the last fifty years, however, the discovery of ironstone has attracted a large mining population.

Middlesborough, the largest town in the district, at the mouth of the Tees, owes its rapid growth, if not its existence, to the discovery of this iron. In 1829 there stood but a solitary house upon the site of Middlesborough, whilst now the atmosphere is blackened with the smoke ascending from blast furnaces and iron works, and there is hardly to be seen a blade of grass or a tree to relieve the

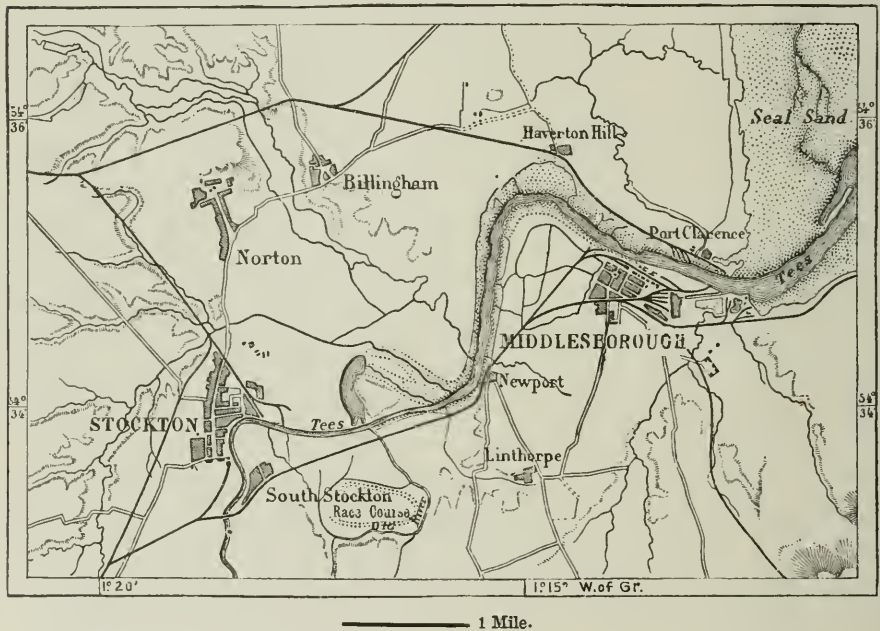
dreariness. The great iron works of this prosperous town were originally constructed for the treatment of Spanish and Algerian ores, but they now draw most of their supplies from the Cleveland Hills, which form the northern escarpment of the Moors, and yield nearly one-third of all the iron ore found in Great Britain. In addition to iron and steel, Middlesbrough manufactures machinery and earthenware, and carries on a most extensive commerce. Its growth has, indeed, been unparalleled in Europe, and only Barrow-in-Furness can compare with it.

Guisborough, the centre of the mining district, is a town of great age, with the ruins of an Augustinian priory. Other places in the vicinity are *Skelton-in-Cleveland*, *Ormesby*, and *Normanby*.

Northallerton and *Thirsk* are quiet agricultural towns at the foot of the

Fig. 122.—MIDDLESBOROUGH AND STOCKTON-ON-TEES.

Scale 1 : 97,600.



Hambleton Hills, which form the western escarpment of the Moors, and on the margin of the vale of York. Near Northallerton was fought the Battle of the Standard (1138). *Helmsley* lies at the southern foot of the Moors, on the fringe of the vale of Pickering. The ruins of Rivaulx Abbey, the first Cistercian house established in Yorkshire (1132), are near it.

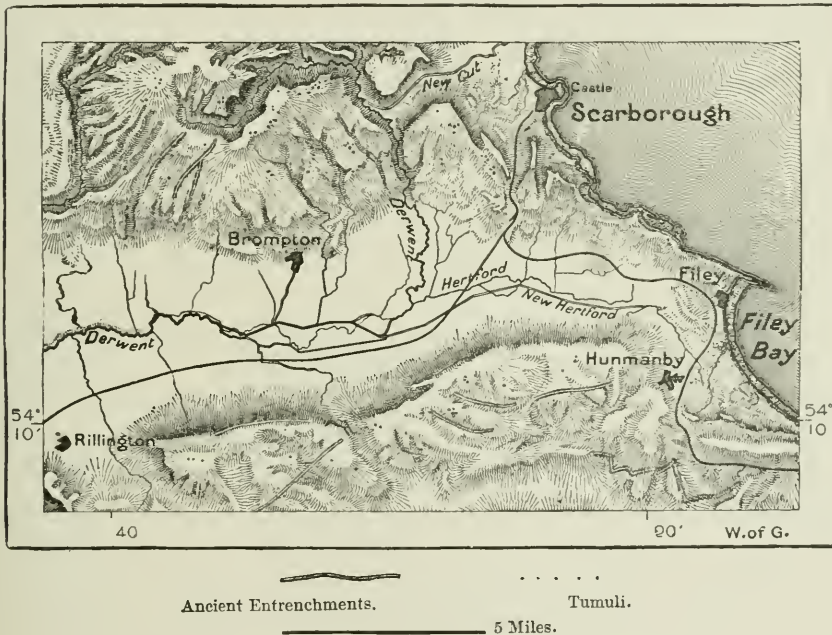
Far more widely known than either of these agricultural towns of Yorkshire are the watering-places which dot the coast from the mouth of the Tees to Flamborough Head. The most renowned amongst them are Whitby and Scarborough. *Whitby*, at the mouth of the river Esk, which rises in the Cleveland Hills, is at the same time a shipping port and a watering-place, and occupies a most picturesque

site. There are alum works in the vicinity, and the herring fishery gives employment to many of the inhabitants, but the town is more widely known for its jet ornaments. This industry has been carried on here from immemorial times, as is proved by the discoveries made in the *houses* which crown the neighbouring hills, and the pilgrims who during the Middle Ages paid their devotions in the abbey of Whitby never failed to carry away with them a cross or a rosary made of jet.

Scarborough, the "Queen of the northern watering-places," possesses resources and amusements far exceeding those of its neighbour Whitby. It is built at the foot and on the top of two cliffs, separated by a chasm spanned by a lofty bridge, which joins the old town to the Spa, Museum, and other buildings

Fig. 123.—SCARBOROUGH.

Scale 1 : 310,000.



specially constructed for the accommodation of the 20,000 visitors who annually flock to it. The Marine Aquarium is larger than that of Brighton. From the keep of the Norman castle which commands the old town we look down with admiration upon the sands which stretch along the foot of the limestone cliffs. Scarborough has been a place of commerce for centuries, and its port, protected by two piers, affords shelter to the largest vessels. The coasting trade carried on is considerable, and the herring fishery is a source of profit. Still the importance of the town is derived almost exclusively from the crowds of visitors annually attracted by its picturesque scenery, bracing air, smooth sands, chalybeate springs, and varied resources for amusement.

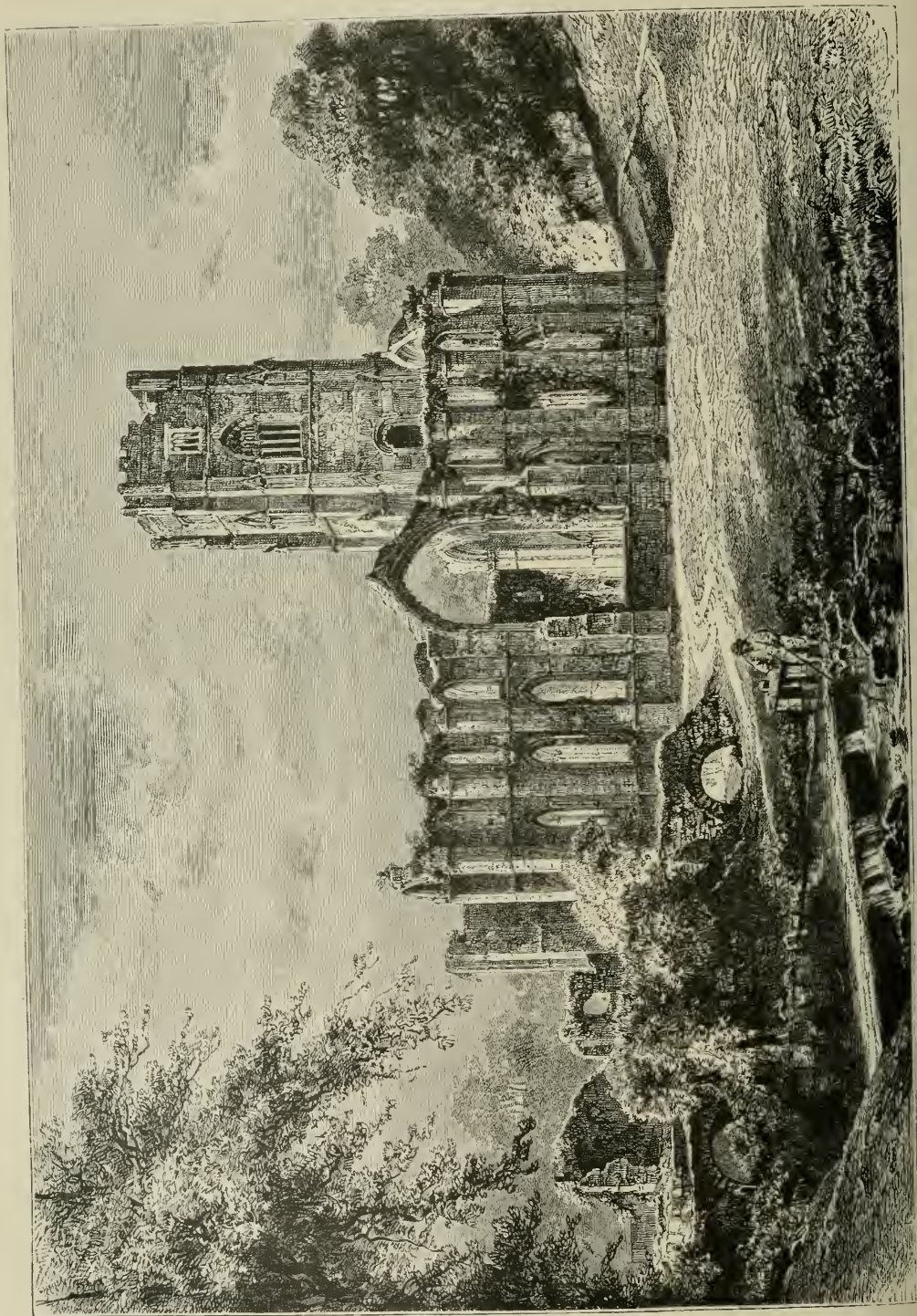
Filey, to the south-east of Scarborough, on the spacious bay to which it gives

name, is protected by a spit of sand, and offers great advantages as a naval station. Amongst other watering-places along this coast *Redcar* and *Saltburn-by-the-Sea* deserve to be mentioned.

The crescent-shaped range of the cretaceous York Wolds extends from the Humber above Hull to Flamborough Head, and presents a bold escarpment towards the vales of York and Pickering, at the foot of which lie the market towns of *Market Weighton* and *Pocklington*. The towns along the inner rim, which merges in the lowlands of Holderness, are far more important. Foremost amongst them is *Kingston-upon-Hull*, usually known as *Hull*, from the small tributary of the Humber at the mouth of which it has been built. Hull is the great port of the whole region, and on the east coast of England it holds a place analogous to that of Liverpool on the west coast. The great port of the Mersey is fed by the manufacturing district of Lancashire; that of the Humber is the emporium of Yorkshire: the former trades in cotton and cottons, the latter in wool and woollens. Hull, in certain respects, enjoys advantages superior even to those of Liverpool, for the Humber and its many navigable tributaries place it in facile communication with a considerable portion of Central England. But though possessing the advantage as regards the river and coasting trades, it is less favoured with respect to the world at large. Hull can look only to Germany, Scandinavia, and the Baltic to feed its commerce, whilst Liverpool faces not only Ireland, but also the New World, and trades largely with Africa.

This advantage of Liverpool, however, only revealed itself after America had been discovered and distinct colonies established, and for a considerable period Hull was her superior. In the fourteenth century it was the third port of England, ranking next to London and Bristol. It furnished Edward III. with sixteen vessels, manned by 500 sailors, to be employed against France. As long as England was a grain-exporting country—that is, until about 1770—large flotillas of barges laden with corn descended all the rivers which discharge themselves into the Humber, and Hull was the natural emporium through which the corn trade with Holland was carried on.* At the present time Hull ranks fifth, and it imports corn, flour, and other agricultural produce, as well as cattle, from Germany, Denmark, and the Baltic. Wool and tobacco likewise figure largely amongst the imports, in return for which Hull exports the produce of the numerous industrial inland towns as well as of its own machine shops, chemical works, oil-crushing mills, and other factories. Lines of steamers place Hull in regular communication with all the ports of the east coast of Great Britain and of Northern Europe. Hull was one of the first towns to take advantage of the maritime route to Siberia opened up by the persistent labours of Nordenskjöld. In 1877 a Hull steamer laden with coal and petroleum reached Tobolsk. The docks, constructed since 1778, and the crescent-shaped roadstead of the river, here 2 miles in width, are at all times crowded with shipping of every description. There are ship-building yards, principally for the construc-

* Halley, "Atlas Maritimus et Commercialis," 1728.



RUINS OF FOUNTAINS ABBEY.

tion of iron vessels. Hull has a fine park, a museum, and several learned societies. Wilberforce was born here, and a monument has been raised in his honour.

Cottingham, a suburban village of Hull, with many market gardens, lies on the road to *Beverley*, a very ancient city, at one time of greater importance than its neighbour Hull, and still the capital of the East Riding. *Beverley* boasts a remarkably fine minster. There are chemical and agricultural machinery works, and a great trade in corn and provisions is carried on. Passing through *Great Driffield*, we reach *Bridlington*, with its fine priory church, and *Bridlington Quay*, its port, on the great bay, protected in the north by Flamborough Head. A chalybeate spring and several intermittent springs, known as the "Gipsies," are near the town. Geologists will be interested in the caverns and fossils of the chalk cliffs, as well as in the ancient bushes covered with shells, which Gwyn Jeffreys refers to the glacial epoch.

There are no towns of importance in the fertile district of Holderness. The only places worth notice are *Patrington*, with a church described as "one of the glories of England," *Withernsea*, and *Hornsea*, the two latter quiet seaside places, as is implied by their names.

We now turn to the desolate moors and romantic valleys of North-western Yorkshire, where the mountains are steepest and the population least dense. This district, known for its greater part as Craven, is intersected by the upper valleys of the rivers Swale, Ure, Nidd, Wharfe, and Aire. It yields a little lead, but no coal: hence the striking contrast it presents to the great hive of industry which adjoins it on the south.

The Swale, in its upper course, flows past the small mining villages of Keld and Reeth, and below the ancient parliamentary borough of *Richmond* it emerges upon the broad plain of York. The Norman castle which overshadows this picturesque town is now used as a militia store. Near this stagnant town is the village of *Hipswell*, the reputed birthplace of Wickliffe, the reformer.

The Ure, or Yore, traverses the Wensley Dale, where woollen knitting and carpet-making occupy some of the inhabitants of the small towns of *Hawes* and *Askrigg*. *Leybourne*, at the mouth of the dale, has a lead mine; and at *Middleham*, near it, are the ruins of one of the castles held by Warwick the King-maker.

Ripon is the principal town on the Ure, and one of the oldest. Near it a funereal mound is pointed out, which tradition asserts to contain the bones of Saxons and Danes who fell on a neighbouring battle-field. There are a small cathedral raised above a Saxon crypt and several ancient hospitals. Studley Royal, the princely seat of the Marquis of Ripon, lies to the west of Ripon, and near it are the picturesque ruins of Fountains Abbey, at one time one of the most powerful houses of the Cistercians, who held all the land from the banks of the Ure as far as the hills of Cumberland. *Boroughbridge* and *Aldbrough*, the Roman *Isurium*, are small towns below Ripon, in whose vicinity many antiquities have been discovered. Most curious amongst these relics of the past are three obelisk-like masses of ragstone, which have long puzzled the brains of antiquaries.

The Nidd, in its upper course, flows through the beautiful Nidderdale, the principal town in which is *Pateley Bridge*, where there is a lead mine. *Ripley* has

Fig. 124.—TOWNS IN SOUTH-WESTERN YORKSHIRE.

Scale 1 : 506,000.



an old castle and an ambitious new town-hall. At *Knaresborough* the river flows between steep cliffs, wooded at their foot. Here, too, there is a castle, and, besides this, a "dropping well," by the side of which "Mother Skipton," the famous

prophetess of the sixteenth century, was born, and extensive limestone quarries. *Ribston* is a small village below *Knaresborough*, where *Ribston* pippins were first grown. *Harrogate*, the famous watering-place, occupies a lofty position above the *Ure*. The first spring was discovered in 1596, and there are now known about twenty-five, both sulphureous and chalybeate.

The *Wharfe* rises in *Langshothdale*, and takes its winding course through a dale renowned for its scenic charms. It flows past the ruins of *Bolton Abbey* and the huge hydropathic establishments which have made *Ilkley* a second *Malvern*, until it reaches *Otley*, a small manufacturing town, which is the capital of *Wharfedale*. At *Wetherby* the *Wharfe* emerges upon the plain of *York*, and flowing past *Tadcaster*, it joins the *Ouse* a short distance above *Cawood*.

The *Aire* takes its rise at the foot of the scars of *Gordale* and in the pretty *Malham Tarn* (1,246 feet above the sea). It flows near *Skipton*, the capital of the *Craven* district, close by which is the castle of the *Cliffords*. Cotton-spinning and quarrying occupy many of the inhabitants. At *Skipton* the *Aire* leaves behind it the rugged limestone region, and enters upon more monotonous moorlands, the towns amongst which will be described further on.

A portion of *Yorkshire* lies beyond the *Pennine* chain, and is drained by the river *Ribble* and by the *Rawthey*, a tributary of the *Lune*. *Sedbergh*, the principal town on the latter, is a secluded place in the midst of steep fells. Its grammar school, however, enjoys some reputation, and amongst its scholars was *Sedgwick*, the geologist, a native of the village of *Dent*, a few miles to the south-east, famous for its black marble.

The *Ribble* rises in the fells to the north of the *Ingleborough*, and flows through a charming country past the small town of *Settle*, dependent upon agriculture and cotton-spinning, into *Lancashire*.

We now enter the south-western moorlands, so abundantly supplied with coal and iron, and traversed in all directions by running streams, which furnish the motive power needed by its innumerable factories. The towns are crowded together in this region, and in some localities have almost blotted out green fields. The opposite diagram will enable us to obtain some notion of their distribution. Broadly speaking, the valleys of the *Aire* and *Calder* are the seats of the woollen and worsted trades, with a great deal of cotton-spinning towards the west; the *Upper Don* is the centre of the iron industry, and its tributary *Dearne* that of the linen trade.

The *Aire* and *Calder*, which traverse the northern portion of this industrial region, have vastly changed their character since the Middle Ages. Their water was famous then for its crystalline purity, and a *Yorkshire* poet cried out, "Why should not the maidens of *Castleford* be beautiful? do they not lave themselves in the mingled waters of the *Aire* and *Calder*?" These rivers, in our own day, are hardly better than open sewers, for they receive the refuse of innumerable factories.

The *Calder*, when it first enters this district, flows past the town of *Keighley*, engaged in the manufacture of worsted and in cotton-spinning, and known for its

ingenious washing machines. In the valley of the Worth, which joins the Aire at Keighley, is *Haworth*, the home of the Brontës. *Bingley* is engaged in the worsted and woollen trades. *Saltaire*, below it, is a model town, and was founded in 1853 by the late Sir Titus Salt, who first introduced the manufacture of alpaca into England. Passing *Shipley*, which carries on the same industries as Bingley, we reach *Leeds*, the commercial and industrial metropolis of the whole district, by right of its population the fifth town of England, but the first in the world for its clothing trade. This branch of industry has been carried on here from very remote times, and as early as the beginning of the sixteenth century the cloth-makers of Leeds, instructed in their craft by Flemish workmen, sent their wares

Fig. 125.—LEEDS.

Scale 1 : 192,000.



into every part of England. Halifax at that time was the most important manufacturing town of the county, and its burgesses enjoyed the privilege of beheading every malefactor who stole any cloth from off the "tenters," a privilege of which they freely availed themselves until its abrogation in 1650. By the end of the seventeenth century Leeds had distanced all its Yorkshire rivals in the clothing trade, and about the same period, in consequence of the introduction of coal into its factories, it enriched itself still further by adding fresh branches of industry to that which had first established its reputation. At the present day almost every description of cloth is made at Leeds, but, besides this, there are huge flax-mills, iron-mills, locomotive works, dye and bleaching works, felt factories, brass foundries,

glass houses, chemical works, leather works, and many others. The lower part of the town, with its numerous factories lit up on a winter night, is a sight never to be forgotten. The principal edifices of Leeds are naturally connected with its leading industries; but, proud of its wealth, the metropolis of the clothing trade has built itself a magnificent town-hall, created public libraries and museums, erected statues to its great men, and provided, in Woodhouse Moor and Roundhay, ample breathing grounds for its population. A grammar school, founded in 1552, a medical school, and a Wesleyan college are the foremost educational establishments of the town. The merchants of Leeds own neat villas on the surrounding heights, and more especially near Chapel Allerton. The ruins of Kirkstall Abbey lie a short distance above the town, near the Aire. Priestley, the illustrious physicist, was born near Leeds.

Castleford, just below the junction of the Aire with the Calder, is the modern representative of the Roman station of *Legeolium*. Its glass houses supply millions of bottles every year. *Knottingley*, on the margin of the plain of York, has a magnificent abbey church, and depends upon glass works and limestone quarries. On the height of land to the south of Castleford lies the cheerful old town of *Pontefract*, i.e. "Broken Bridge," often called Pomfret. Its chief curiosities are the ruins of the Norman castle in which Richard II. was starved to death (1400). The town is famous for its liquorice.

Bradford, in a narrow valley which trends northward towards the Aire, and to the west of Leeds, has made wonderful progress in wealth and population since the beginning of this century. In 1801 the town only numbered 13,000 inhabitants; in 1822 the first steam-engine was set up; but at present Bradford stands foremost for its woollen stuffs and worsted yarns, and has close upon 200,000 inhabitants. No other town in Yorkshire surpasses it in public spirit. The town-hall, with its carillon chimes, is one of the finest buildings in Yorkshire; there are three parks; and statues have been raised in honour of several benefactors of the town. *Bierley*, almost a suburb of Bradford, is dependent upon the Bowling and Lowmoor iron works, the latter the oldest and most important in Yorkshire.

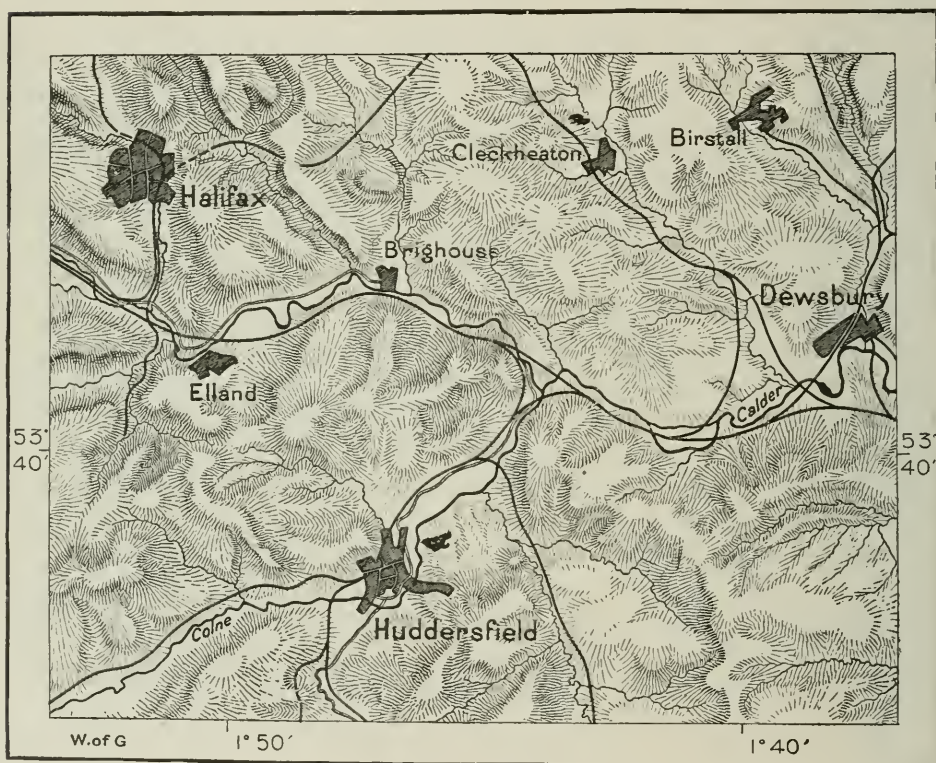
The river Calder rises in the moors around *Todmorden*, a brisk manufacturing town, with numerous cotton-mills, on the boundary of Lancashire. This upper valley of the Calder is very pretty, and would present scenes of rural peace and beauty if it were not for the numerous factories which have invaded it. *Sowerby*, *Elland*, and *Brighouse*, quiet villages in former times, have grown into little manufacturing towns, principally engaged in the production of textiles. Far more ancient than either of these, and, in fact, the most venerable manufacturing town of Yorkshire, is *Halifax*, which rises on the slopes of the picturesque hills overlooking the Hebble, a tributary of the Calder. Though outstripped in importance by Leeds and Bradford, Halifax nevertheless remains one of the most interesting and picturesque towns of Yorkshire. It is one of the chief seats of the worsted and carpet trades. *Huddersfield* is a well-built town on the Colne, which joins the Calder from the south. It carries on the manufacture of woollens, cottons, and

machinery. In its neighbourhood are foundries, quarries, and coal mines. The smaller towns dependent upon it—such as *Golcar*, *Linthwaite*, *Meltham*, and *Wooldale*—engage in the same industries.

Once more returning to the Calder, we reach *Dewsbury*, an ancient town, where Paulinus first preached Christianity to the heathen. Together with the neighbouring town of *Batley*, it forms a parliamentary borough. Batley and Dewsbury are the head-quarters of the shoddy trade, whose profitable task it is to convert old clothes into new cloth. The same industry engages *Morley*, *Birstall*, *Cleck-*

Fig. 126.—HALIFAX AND HUDDERSFIELD.

Scale 1 : 160,000.



heaton, and other towns in the vicinity; whilst *Heckmondwike*, to the east, produces carpets, blankets, and “flushings.” *Thornhill*, to the south of *Dewsbury*, boasts a fine decorated church and an Elizabethan mansion.

Wakefield, formerly one of the busiest manufacturing towns of Yorkshire, has still some woollen-mills, worsted-mills, and iron works, but flourishes principally as the great corn market of the county. The feudal enactment which compelled the inhabitants to have their corn ground in certain mills was in force as recently as 1853. Amongst the scholars who attended the grammar school of the town were Dr. Radcliffe, the founder of the Radcliffe Library, and Dr. Bentley, the

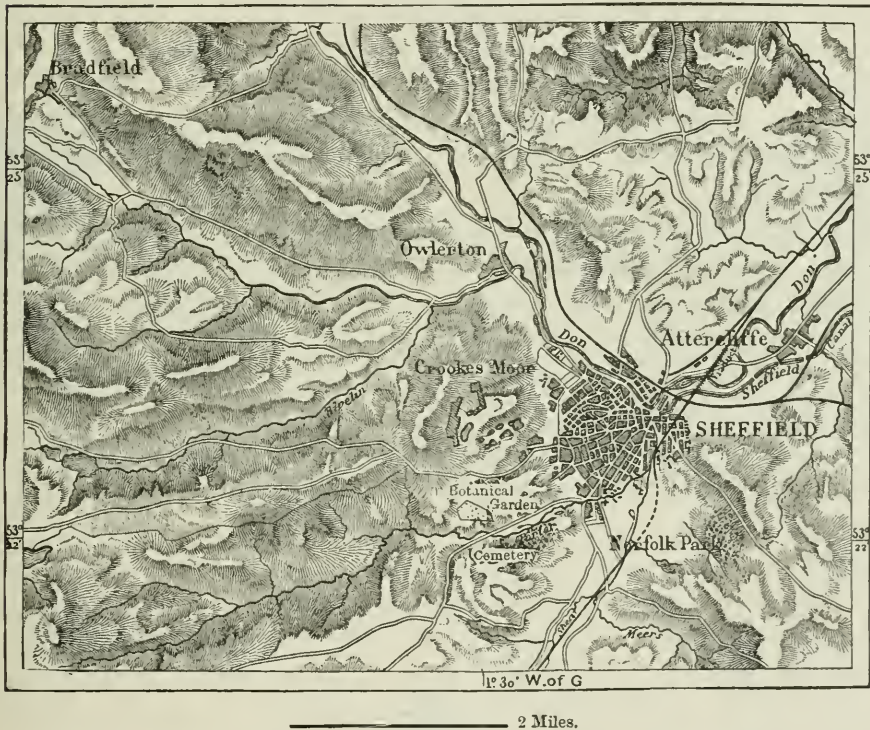
critic. The battle of Wakefield, in which the Duke of York was defeated and slain by the forces of Queen Margaret, was fought around Sandal Castle, to the south of the town (1460).

"Bleak" *Barnsley*, an interesting town on the river Dearne, is the centre of the linen manufacture of Yorkshire. Its neighbourhood abounds in collieries and iron works. One of the former has been sunk to a depth of 1,885 feet, and yields daily a thousand tons of coal. *Worsborough* and *Nether Hoyland*, to the south of Barnsley, have important iron works, whilst *Silkstone*, to the west, is best known for its coal. It was also the birthplace of Bramah, the locksmith.

The river Don rises not far from Woodhead Tunnel, through which runs the

Fig. 127.—SHEFFIELD.

Scale 1 : 113,000.



railway connecting South-western Yorkshire with Manchester. *Thurlstone*, *Penistone*, and *Wortley* are small towns on the Upper Don, which in its onward course traverses the famous manufacturing town of *Sheffield*. It is admirably seated in the midst of a fine amphitheatre of hills, at the point of junction of five rivers, and above the stores of coal which furnish its numerous factories with the fuel indispensable to them. Sheffield, originally a small feudal village, has been for centuries a place of iron-workers, and Chaucer mentions the "thwytels" which were made there. Soon after the Reformation skilled Flemish metal-workers settled in the town, and greatly contributed towards

its prosperity. But it is only since the beginning of the present century that this Yorkshire town has won the first place in the world for its cutlery and steel. Its population is seven times greater now than what it was in 1801, and continues to increase at the same rate. Like London, Manchester, and Birmingham, it swallows up the villages in its neighbourhood, and already its houses cover an area of 8 square miles. The iron won in this district, which is known as Hallamshire, no longer suffices for the wants of the factories, and additional supplies have to be procured from abroad. Most of the famous iron of Sweden is bought up on account of Sheffield houses. More ivory is used in Sheffield than in any other part of the world. It has been computed that the ivory handles of the knives annually manufactured at Sheffield have a weight of 200 tons, which would represent the spoils of at least 15,000 elephants. Cutlery, files, saws, and tools of every description, Britannia and electro-plated ware, are the staple manufactures of Sheffield; and there are also important iron and steel works. The water supply of the town is obtained from reservoirs formed in the valleys to the west. In 1864 one of these dams burst its embankment, causing a great flood, in which 250 persons were drowned and much property destroyed. Chantrey, the sculptor, was born at Norton, a village near Sheffield.

The towns and villages around Sheffield participate in its industry. *Rotherham*, the most important amongst them, has iron and steel works as well as collieries. *Mexborough*, near the mouth of the Dearne, in addition to iron works, has important glass houses. Soon after passing this town the Don emerges from the dreary moorlands, blackened by the smoke of factories, and enters upon the smiling plain of York.*

* For smaller towns and villages not mentioned above refer to the Statistical Appendix.





CHAPTER X.

THE BASINS OF THE MERSEY AND THE RIBBLE.

(CHESHIRE AND LANCASHIRE.)

GENERAL FEATURES.



THOUGH small in extent, the district which we are about to describe is one of the most densely peopled in the world, and green fields appear almost obliterated by the masses of brick houses raised by human hands. Lancashire has more inhabitants within its limits than any other county of England, not even excepting Yorkshire or Middlesex—the one more than thrice its size, the other occupied by the greater part of the metropolis. If the whole world were as densely peopled as Lancashire, it would hold 76,000,000,000 of human beings.

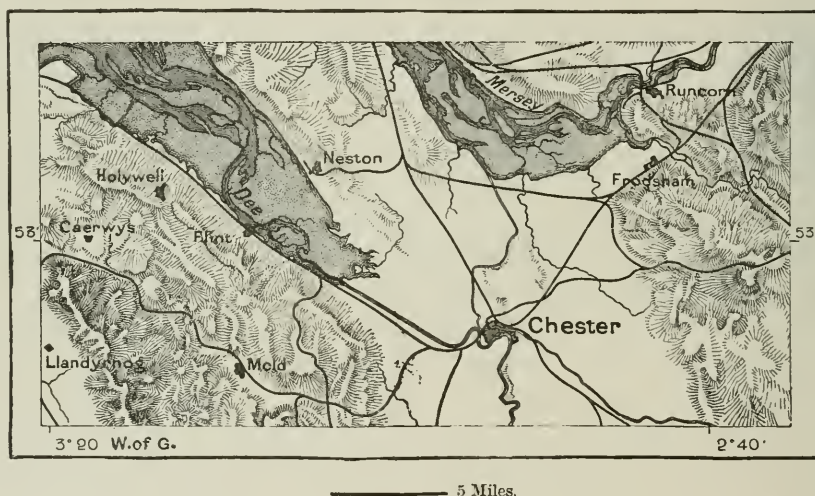
At first view this county does not appear to possess exceptional advantages. The soil is only of middling fertility, and vast tracts on the western slope of the Pennine chain are not even cultivated. The climate is moist, and the prevailing winds carry the sea-fogs inland, where they are precipitated as rain. The coast, it is true, is indented by several estuaries, in which the tide rises to a considerable height; but this is an advantage enjoyed by many other parts of England. What has proved the great source of wealth of Lancashire is its coal measures, and as the coal is found in close proximity to an excellent harbour, it became at once available as a means of establishing commercial relations with foreign countries. The raw materials could thus be conveyed within a short distance of the locality in which they were to be converted into manufactures, and it was possible to concentrate here commercial emporiums, factories, and mines. The enterprise and energy of the inhabitants have done the rest. The people of Lancashire are in no respect inferior in skill to their neighbours of Yorkshire. They have turned to profit all the resources which their county offers, and derive benefit even from advantages which elsewhere are allowed to lie sterile. The local dialects are as tenaciously preserved as amongst the dwellers on the other side of the Pennine chain. It has been observed that the large rivers and estuaries form the boundaries between a variety of local dialects. Where the rivers can be forded, or are spanned

by a bridge, the same dialect is heard on both banks; but where they constitute a serious obstacle to free intercourse the dialects differ.*

CHESHIRE consists in the main of a broad plain, which extends from the river Dee to the Mersey, and is intersected by the Weaver and its tributaries. The soil of this plain is for the most part loam; it is of exceeding fertility, and it is impossible to imagine a finer grazing district. The grass retains its verdure throughout the year, and the dairy husbandry is consequently attended to with great success. A broken ridge of hills divides this plain into a western and an eastern portion. It passes into the county from the south, and extends northward as far as the Lower Mersey. Its most remarkable feature is the insulated rock of Beeston, crowned with the ruins of a castle. In the east the plain is bounded by a range of uplands, known as Congleton Edge and Macclesfield Forest. These uplands are a southern extension of the Pennine chain; they separate Cheshire from Stafford-

Fig. 128.—CHESTER.

Scale 1 : 500,000.



shire and Derbyshire, and contain coal, iron, and lead. Far more important than either of these are, however, the salt mines and brine springs in the valley of the Weaver. In the north-west the plain of Cheshire runs into the peninsula of Wirral, which juts out to the Irish Sea between the estuaries of the Dee and Mersey. Cotton and silk spinning and weaving are the principal branches of manufacture carried on.

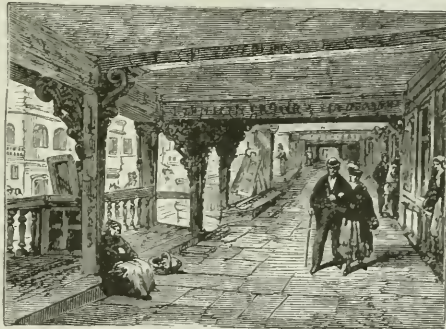
Chester, the ancient capital of the county, is seated upon the river Dee, which a few miles below the city broadens out into a wide and shallow estuary close to the Welsh frontier. It is of great antiquity, as is proved by its very name, a corruption of the Roman *castrum*, and a great Roman highway, now known as Watling Street, connected it with London and Dover. The foundations of Roman buildings and antiquities of every description have been discovered. The Romans called

* James Pearson; Nodal and Milner, "Glossary of the Lancashire Dialect."

their city *Deva*, after the river Dee. They certainly worked lead mines in its vicinity, for two "pigs" of that metal have been found, one of which has impressed upon it the name of Vespasian. That which distinguishes Chester more especially from all other towns of modern England is its streets carved out of the rock, and the covered arcades, or "rows," in front of the first-floor rooms of the houses which line them. The old Roman ramparts have been transformed into walls, which are wide enough to allow of three men walking abreast. Perambulating them, we obtain curious glimpses of the city: we look down upon the famous "Roodee," the Chèster racecourse, backed by the Clwydian hills. The circuit of the walls is interrupted by several towers, and from one of these Charles I. is said to have witnessed the defeat of his army on Rowton Heath in 1645.

Most prominent amongst the buildings of the town is the venerable cathedral, reopened, after having been carefully restored, in 1876. Its foundations date back to the twelfth century; but the existing building, which is chiefly in the perpendicular style, is of more recent date. Far more venerable than the cathedral is the church of St. John, outside the city walls, with its detached belfry, one of the most splendid examples of early Norman architecture.

Fig. 129.—WATERGATE ROW, CHEST



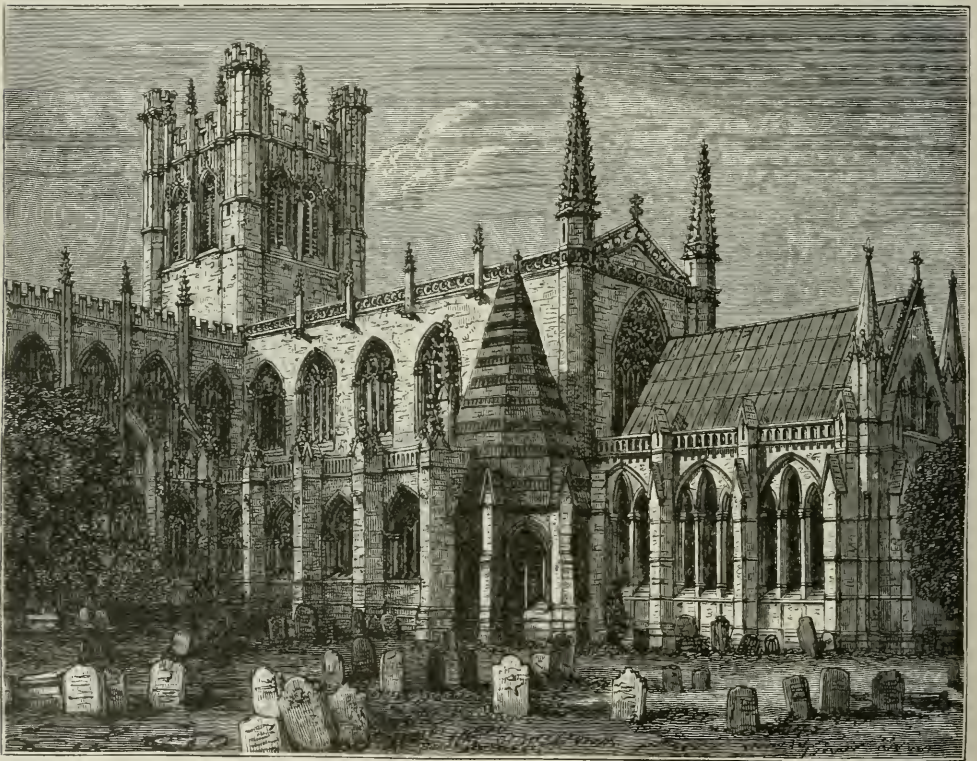
Chester is still a seaport; but neither its canalised river, nor the canal which connects the city with the Mersey at Ellesmere Port, is navigable by any but the smallest coasting craft. Hence the maritime commerce of Chester is no longer what it used to be. Ship-building and lead smelting are carried on to a small extent; but it is more especially through its trade in cheese that Chester has become known throughout the commercial world. Many strangers have settled in the city, attracted by its pure air and cheap living. Within a few miles of it is Eaton Hall, the magnificent seat of the Duke of Westminster. *Tarporley*, a quaint old market town, where hosiery and leather breeches are manufactured, lies about 10 miles to the E.S.E. of Chester.

Birkenhead, the principal town on the peninsula of Wirral, is a mere dependency of Liverpool, which lies within sight of it, on the opposite bank of the Mersey, and with which a tunnel will soon connect it. Its vast docks have been constructed since 1847, principally through the exertions of Mr. Laird. They cover an area of 165 acres, have quays 10 miles in length, and 235 acres of warehouses. One of these artificial basins is the largest into which the waters of the Mersey are admitted. Ship-building and machinery are the principal industries carried on here. *Tranmere* and *Wallasey* are populous suburbs of Birkenhead, and from the latter a row of pretty villas extends to the delightful watering-place of *New Brighton*, at the mouth of the Mersey, where a charming view of the Welsh hills presents itself, and the crowds of shipping entering and leaving the

port may be watched. The two *Bebingtons* are pleasant villages to the south-east of Birkenhead; whilst *Bilston*, with the Liverpool Observatory, lies to the west. *Parkgate* is a small watering-place on the estuary of the Dee.

Ascending the Mersey above Liverpool and Birkenhead, we reach *Runcorn*, in the vicinity of the mouth of the Weaver—the busy shipping port of the Staffordshire Potteries, and of the salt mines in the basin of the Weaver. That river is fed by numerous streams which rise in the saliferous triassic formation. The names of several towns in its neighbourhood terminate in the Celtic *wich*, or rather *wyche*, which signifies “salt work,” and must not be confounded with the Danish *wick*, the meaning of which is “bay.” Of these salt

Fig. 130.—CHESTER CATHEDRAL (AS RESTORED).



mines and brine springs those at *Northwich* are by far the most productive. The saliferous strata have a total thickness of about 100 feet, and extend for a considerable distance beneath the soil. They are honeycombed by the galleries excavated by the miners, and although these are supported by a multitude of pillars, the ground has given way in many places, and a portion of the town had to be deserted by its inhabitants, who have built themselves fresh dwellings at Witton and other villages in the neighbourhood. *Middlewich*, on the Dane, a tributary of the Weaver, and *Nantwich*, a quaint old town, on the Weaver itself, are the principal amongst the other salt towns of Cheshire. In favourable years the mines and springs of the Weaver basin yield over 1,000,000 tons of salt,

which supplies a profitable cargo to outward-bound merchantmen, and in this manner the miners of Cheshire contribute largely to the prosperity of the great port of the Mersey. Most of this salt, which is cut into huge quadrangular blocks, is sent to India, Russia, and the United States. The salt mines of Cheshire may be less famous than those of Wieliczka in Galicia, or of Hallein and Hallstatt in Austria, but commercially they are certainly of far greater importance.

Crewe, to the east of Nantwich, has grown from an agricultural village into a populous hive of industry since the establishment of the locomotive factories of the London and North-Western Railway Company. There are, besides these, iron and Bessemer steel works.

Sandbach, *Congleton*, *Macclesfield*, and *Bollington*, to the north-east of Crewe, and at the foot of the picturesque range of heights which stretches along the eastern border of the county, are the centres of a manufacturing district, in which silk spinning and weaving are the principal branches of industry carried on. Macclesfield, the most important of these towns, engages also in the velvet and cotton trade, and near it are coal mines and quarries.

A second manufacturing district of even greater importance occupies the north-eastern portion of the county, extending down the picturesque valley of the Mersey, almost from its origin in the moorlands of Yorkshire to within a few miles of its junction with the Irwell. Cotton is king in this district, the natural head-quarters of which are at Manchester. *Stockport* is the great cotton town of Cheshire. It occupies a beautiful site on both banks of the Mersey, here spanned by a fine viaduct, and, in addition to cotton stuffs, produces felt hats. Higher up on the Mersey are *Hyde*, one of the most prosperous of these cotton towns, *Dukinfield*, and *Stalybridge*, which, in addition to cotton-mills, have important machine works, and manufacture nails and rivets. *Bredbury* and *Mottram* are the principal towns in the Longdendale, which joins the Mersey above Stockport. The hills along its sides yield coal and iron.

Descending the Mersey, we pass *Sale*, a small manufacturing town, and, turning away from the river, reach *Altringham*, or *Altrincham*, a clean and cheerful town, with a few flax-mills, close to Bowden Downs and the beautiful park of Dunham Massey.

Lymm, near the confluence of the Bollin with the Mersey, and *Knutsford*, half-way between the Bollin and the Weaver, are prosperous market towns.

LANCASHIRE naturally falls into three parts, of which the first lies between the Mersey and the Ribble, and is the great seat of the cotton industry of the British Islands; the second stretches to the north of the Ribble, and is mainly agricultural; whilst the third includes the hundred of Furness, a detached part of the county lying beyond Morecambe Bay, which has recently attained considerable importance on account of its iron mines and furnaces. The central and eastern portions of Southern Lancashire are occupied by hilly moorlands,* which throw off a branch in the direction of Liverpool, and thus separate the plain of the Mersey, with its mosses, from the western maritime plain, which near the coast merges into

* Pendle Hill, their culminating point, attains a height of 1,816 feet.

forbidding marshes. These moorlands are not by any means fertile, and before the coal mines which lie amongst them were opened to become a source of wealth to the county, they supported only a small population. Since then hamlets have grown into towns, towns into provinces of houses, and there is not a district of similar extent in England which supports so large a number of inhabitants. Northern Lancashire includes a similar tract of moorland in the west, which rises

Fig. 131.—TOWNS IN LANCASHIRE AND CHESHIRE.

Scale 1 : 792,000.



to a height of 1,709 feet in the Bleasdale Moors; but for the most part it consists of a broad plain, the maritime portion of which, between the Ribble and Lancaster Bay, is known as the Fylde. The hundred of Furness forms part of the Cumbrian region, and within it lie a portion of the Windermere and Coniston Water, from the banks of which Coniston Old Man rises to a height of 2,655 feet.

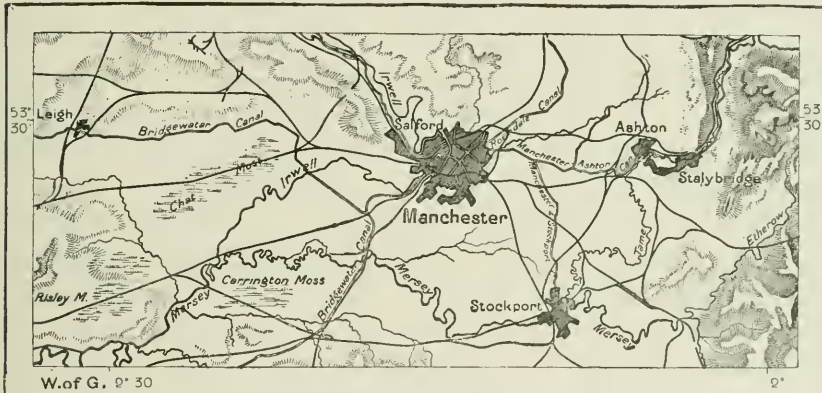
The coast of Lancashire, though much indented by arms of the sea, is singularly deficient in good harbours, and even the approaches to the Mersey are much obstructed by sand-banks. Morecambe Bay, which forms so inviting a feature on a map, is also choked with sand-banks, and when the tide is out it is possible to cross almost dryshod.

Lancashire is most essentially a manufacturing and mining county, its agriculture being quite of secondary importance. An extensive system of canals places its principal centres of population in communication with each other, and railways intersect it in every direction.

There is not, probably, a river in the world which sets in motion the wheels of so many mills, and carries on its back so many vessels, as does the Mersey; and yet this river drains only a small basin, and its volume does not exceed 1,400 cubic feet a second. But within this basin lies Manchester, the great seat of

Fig. 132.—MANCHESTER AND ENVIRONS.

Scale 1 : 375,000.



the cotton trade, and its mouth is guarded by Liverpool, the commercial port of the most important manufacturing region in the world.

Manchester and *Salford* are built upon the black and dye-stained waters of the Irwell, Irk, and Medlock, into which numerous factories discharge their refuse, but which the corporations of these two towns have at last determined to cleanse and convert into limpid streams. The volume of water brought down from the moorlands by these rivulets is not very great, but it suffices to fill a dock crowded with barges. It has been proposed by engineers to make Manchester a maritime port by converting the Mersey and its tributary Irwell into a ship canal, up which the tide would ascend as far as the present dock. The construction of such a canal, which would have a length of 33 miles, a width of 220 and a depth of 20 feet, it is assumed, would require an expenditure of close upon four millions. If this scheme should ever be realised, Manchester will have no longer cause to envy Glasgow, its Scotch rival. For the present the metropolis of the cotton

trade is almost entirely dependent upon the railway which connects it with Liverpool. This is one of the oldest lines in existence, and its opening in 1830 marked the starting-point of a new industrial and commercial era, which has influenced the whole world. Near its centre this railway crosses the quaking Chat Moss, which even engineers of our own days would look upon as a formidable obstacle.

The city of Manchester is not, like Bradford, Middlesborough, and other vast manufacturing centres of England, of yesterday's growth. It is the modern representative of the Roman *Mancunium*, and as early as the fourteenth century it had become known for its manufacture of cloth, introduced by Flemish workmen. At a subsequent period other branches of industry were established by Protestant refugees, whom religious wars had driven from the continent, and about the beginning of the eighteenth century cotton was first largely manufactured, in addition to wool. In our own days Manchester is known throughout the world as the metropolis of the cotton trade, and its great merchants have become "cotton lords." Cotton factories, however, are not so much to be found in Manchester itself—which is rather the market and business centre of the trade—as in its suburbs, and in the numerous towns which stud the country between Preston and Clitheroe in the north, and Stockton in the south. There are towns in this district which, relatively to their size, employ more hands in their cotton-mills than Manchester; but that city, if we include Salford and the more remote suburbs, nevertheless ranks first amongst all as a manufacturing centre no less than as a place of business. Thousands of workmen find employment in its cotton-mills, calendering and finishing works, bleaching, dyeing, and print works. There are, besides, worsted, flax, and silk mills, though these are very subordinate to the leading industry. Far more important are the machine shops, which supply most of the cotton-mills with machinery. Of importance, likewise, are the manufacture of miscellaneous metal articles, glass-making, coach-building, and brass finishing. Millions of pounds of capital have been invested in these various branches of manufacture, and we need not, therefore, wonder if zealous advocates of a policy which considers above all things financial and industrial interests should have come forward at Manchester. It was in the old Free-Trade Hall, now replaced by a building of ampler dimensions, that free trade was hatched under the auspices of the Anti-Corn-Law League. Politicians of the so-called Manchester school, a very influential party in England, are generally credited with a desire of remaining neutral under any circumstances, and desiring peace at any price, as long as the markets of the world are not closed against Lancashire produce. Of recent years, however, the factory owners of Lancashire have not lain upon a bed of roses. The United States have shut out their goods by high protective duties, and India has established cotton-mills of her own to supply the wants of her population. Manchester, consequently, has not recently grown quite so fast as several other towns.

Sumptuous public edifices bear witness to the wealth of the great Lancashire city. The new Town Hall is one of the most magnificent buildings of the class

in England; the Exchange is a vast and splendid pile, in the classic style; the Assize Courts is a beautiful Gothic pile, by Waterhouse—the same architect to whom we are indebted for the Town Hall. The cathedral, or “old church,” is venerable for its age, but not remarkable for size. Amongst charitable institutions the most important is the Infirmary, in front of which have been placed statues of Wellington, Watt, Dalton (the discoverer of the atomic theory), and Sir Robert Peel. Public parks and gardens supply the citizens with a fair amount of fresh air. Besides three parks, one of them having a museum in its centre, there are the Zoological Gardens at Bellevue, the Botanic Gardens at Trafford, the Alexandra Park, with an Aquarium, and the Pomona Gardens, the two latter favourite places of resort.

In addition to pure air, Manchester is anxious to secure an ample supply of pure water. The present supply amounts to 240,000,000 gallons daily, being at the rate of 30 gallons per head of the population; but as a considerable proportion of this quantity is absorbed by the factories, the remainder does not adequately meet the requirements of the inhabitants. The corporation has consequently purchased a charming lake in Cumberland, the Thirlmere, with a view of raising its level 50 feet by means of a dam, and carrying its limpid contents along an aqueduct 90 miles in length, as far as Manchester. No doubt the corporation might have obtained all the water they require had they converted the neighbouring heaths into a huge basin for catching the rain, and constructed gigantic reservoirs; but these heaths are already dotted over with houses and factories, and all the wealth of Manchester would hardly suffice to purchase them.

Manchester is not merely a place of business and industry, for it can boast its libraries, learned societies, and educational institutions. Cheetham Library, founded in 1457, is the oldest amongst the former, but the modern Free Library is far richer, if wealth can be counted by the number of volumes. Foremost amongst educational institutions is the famous college founded by John Owen in 1846. It has recently received a long-coveted charter, which confers upon it the privileges of a university, named in honour of the Queen.

The towns and villages around Manchester are all of them more or less dependent upon that city, and carry on the same industries. *Swinton*, *Pendlebury*, and *Prestwich* are towns on both banks of the Irwell above Manchester. Below that city the river named flows past Trafford Park and the suburbs of *Eccles* and *Barton*, the one famous for its wakes and cakes, the other noteworthy for the aqueduct which carries the Bridgewater Canal across the Irwell. Close by, at *Worsley*, is a seat of the Earl of Ellesmere. *Stretford* and *Didsbury* are the principal places on the Mersey to the south of Manchester. Stretford has large slaughter-houses for pigs, whilst Didsbury is the seat of a Wesleyan Methodist College. The eastern and south-eastern suburbs of Manchester include *Gorton*, with chemical works, in addition to the all-pervading cotton-mills, *Newton Heath*, *Bradford*, *Openshaw*, *Rusholme*, and *Levensholme*.

Farther away in the same direction, we reach a constellation of manufacturing towns, the principal amongst which is *Ashton-under-Lyme*, and which

includes amongst its members the Cheshire towns of Stalybridge, Dukinfield, and Hyde (see p. 265). In the whole of this district cotton-spinning is the leading industry, but a good deal of machinery is also made. Mossley, Hurst, Droylsden, and Denton are the principal villages dependent upon Ashton.

Oldham, to the north-east of Manchester, is almost wholly devoted to cotton spinning and weaving, and machine-making. The machine works of Messrs. Platt are the largest in the United Kingdom. *Middleton*, on the Irk, to the north of Manchester, manufactures tapes and small wares, in addition to brocaded silks, which are frequently sold as the produce of the looms of Bethnal Green.

Bolton-le-Moors is another centre of a congeries of factory towns, and scarcely yields to Oldham in population. It is a busy hive of industry, which has grown up in the midst of sterile moors near the river Roach, and owes much of its prosperity to Flemish, Palatine, and Huguenot emigrants. During the Civil War it was besieged by the Earl of Derby. The town is famous for its fine yarns, shirtings, and cambrics, and also turns out engines, machinery, patent safes and locks, and other minor articles. Amongst its buildings are a town-hall, a large market hall, and a free library with museum. A monument has been erected to Crompton, the inventor of the mule. Collieries are worked in the neighbourhood. *Furnworth*, *Kearsley*, and *Hallivell* are minor manufacturing places near Bolton. Farther away towards the south-west are the cotton towns of *Leigh*—where also silk is woven on hand-loom—*Atherton*, *Tyldesley*, *Astley*, and *Bedford*. The country around these towns is rich in coal and building stone, and the dairies supply excellent cheese.

Bury, on a hill overlooking the Irwell, is another centre of the cotton trade, besides which the paper for the *Times* newspaper is made here. Sir Robert Peel was a native of the town, and a monument has been erected in his memory. *Summerseat* is higher up on the river, with the factory of Messrs. Grant, who were the original Brothers Cheeryble in "*Nicholas Nickleby*." *Radcliffe* and *Whitefield* are in the same neighbourhood. Ascending the Irwell, we pass *Ramsbottom* and *Haslingden*, and reach *Bacup*, known for its co-operative cotton factories, in the heart of the Rossendale Forest, and near the head of the Irwell.

Rochdale, on the Roch, an affluent of the Irwell, is chiefly occupied in the woollen, and more especially the flannel trade. It was here that twenty-eight "Equitable Pioneers" founded in 1842 a co-operative society which has served as a model to similar associations throughout the world. *Heywood*, lower down on the Roch, is engaged in cotton-spinning; whilst *Littleborough*, near the head of the river, and at the foot of Blackstone Edge, is noted for its pretty scenery.

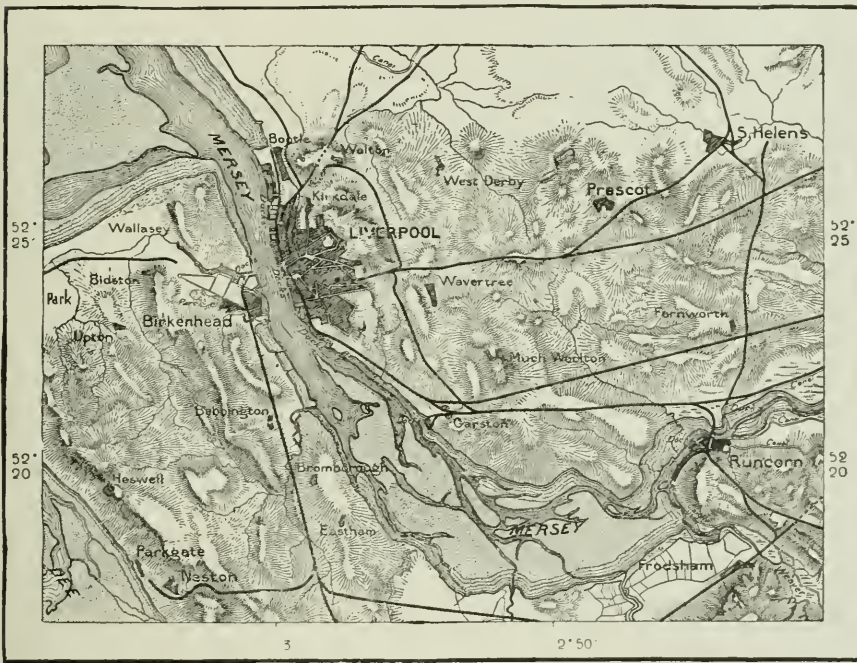
Having now dealt with the Lancashire towns which occupy the upper basin of the Mersey, we return to the south, in order to descend that river as far as Liverpool. On our way we pass the important manufacturing town of *Warrington*, where the Mersey is spanned by a bridge built in the time of Henry VII. From this bridge the river is navigable for vessels of 150 tons burden. *Warrington* has iron and steel works, engineering factories, glass houses, and wire works. Pins are enumerated amongst the articles made here. A few miles lower

down, between *Runcorn*, on the Cheshire side, and *Widnes*, the estuary of the Mersey has a width of 7,500 feet, but is nevertheless crossed by a magnificent railway viaduct. *Widnes* is a town of evil odour, with chemical works, soap factories, bone-manure works, and copper-smelting houses. Continuing our journey, we soon obtain a sight of the small town of *Garston*, after which house succeeds house in a continuous city, which is half hidden by the rigging of the innumerable ships and steamers lying at anchor in the roadstead or crowding the docks. This is *Liverpool*.

This powerful city has only risen into importance in recent times. It is not even mentioned in the list of towns and villages in the Domesday Book.

Fig. 133.—LIVERPOOL.

Scale 1 : 300,000.



5 Miles.

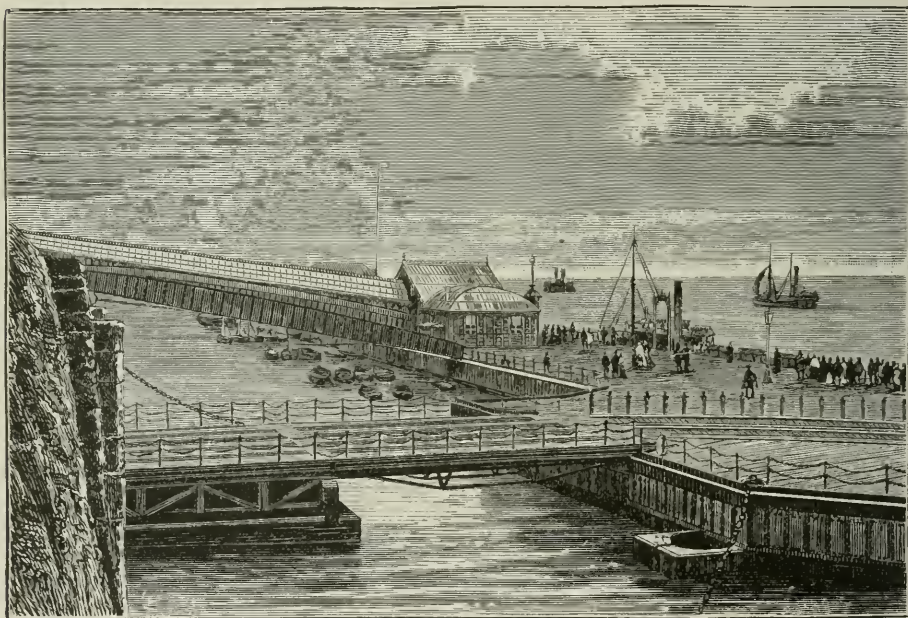
The first reference to it occurs in the year 1172, when Henry II. was preparing to invade Ireland, and embarked his troops in the estuary of the Mersey. In 1338, when Edward III. made a general levy upon the vessels and sailors of his kingdom, Liverpool was as yet of such small importance that out of a total of 700 vessels and 14,141 men it was called upon to furnish a solitary barge manned by six mariners. Even as recently as 1571 the citizens of Liverpool, when appealing to Queen Elizabeth to reduce their taxes, referred to their town as a "poor decayed place."* About 1700 Liverpool had hardly 5,000 inhabitants; but the gradual silting up of the Dee, and consequent destruction of the port of Chester, proved of advantage to Liverpool, whose merchants, about this period,

* Weale, "Public Works of England."

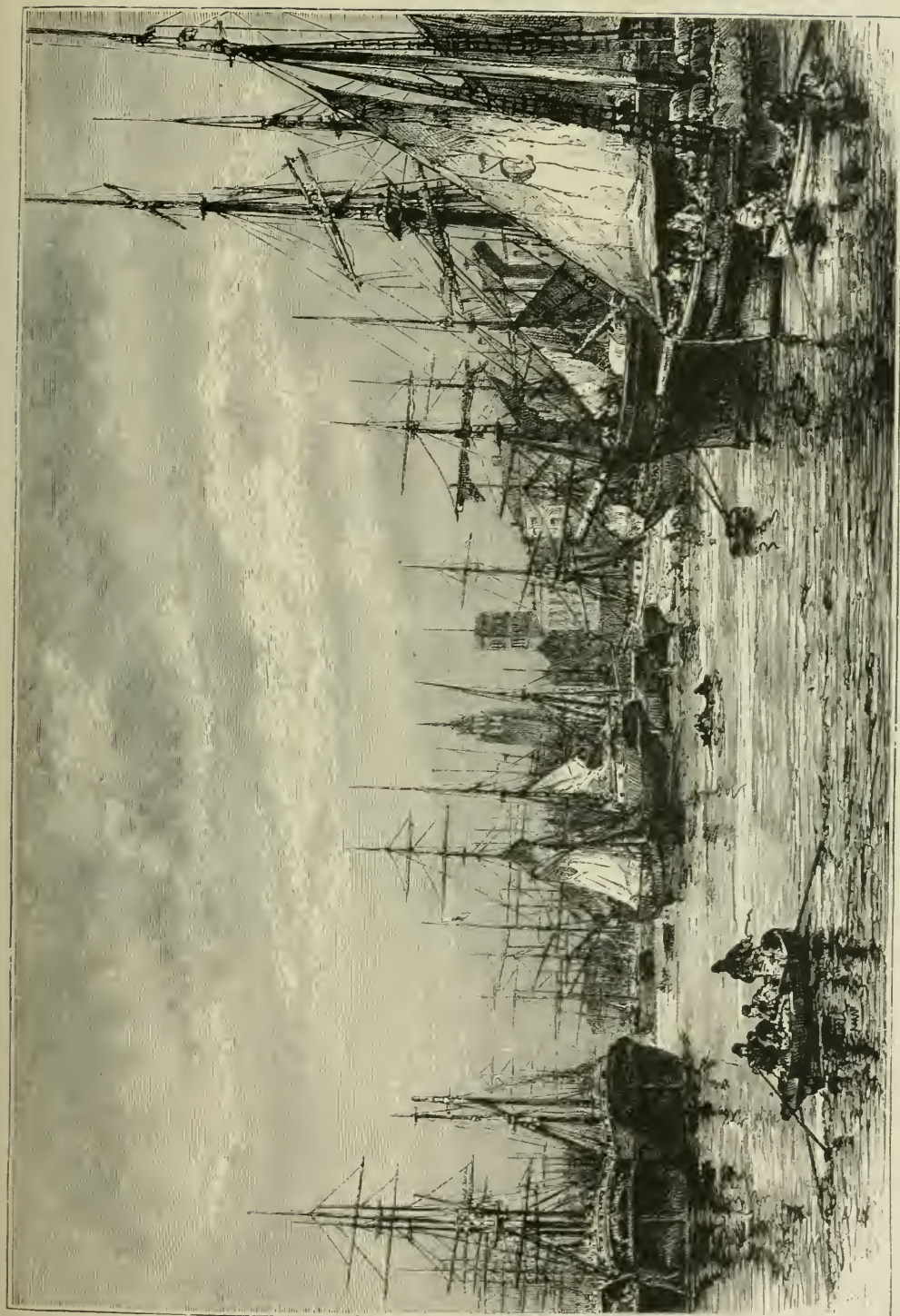
began to grow rich, mainly from the profits derived from the slave trade. When Fuseli, the artist, was called upon to admire the wide streets and noble buildings of a quarter of the town then recently constructed, he said, with reference to this fact, that he felt as if the blood of negroes must ooze out of the stones.

Liverpool is largely indebted for its prosperity to its central position with reference to the sister islands of Great Britain and Ireland, for upon it converge all the great highways over which the home trade of the British Islands is carried on. This central position has been equally advantageous to its foreign trade. Though farther away than Bristol from the ocean, which is the high-road connecting England with America, Africa, and the Indies, this disadvantage is more than compensated for by Liverpool's proximity to the vast coal basin which has become the great seat of English manufacturing industry.

Fig. 134.—THE LANDING-STAGE.



The docks are the great marvel of Liverpool. No other town can boast of possessing so considerable an extent of sea-water enclosed between solid masonry walls, and kept under control by locks. There are maritime cities with roadsteads capable of accommodating entire fleets, but few amongst them have docks sufficiently spacious to admit thousands of vessels at one and the same time, like London and Liverpool. The latter is even superior in this respect to the great commercial emporium on the Thames, and certainly preceded it in the construction of docks. In 1709 the Corporation of Liverpool first caused a pool to be deepened in order that it might afford shelter to vessels. This, the precursor of the existing basins, has been filled up since, and the sumptuous revenue and customs buildings have been raised upon its site. But for the one dock thus abolished, twenty-seven others, far more vast and convenient, have been constructed since. These docks

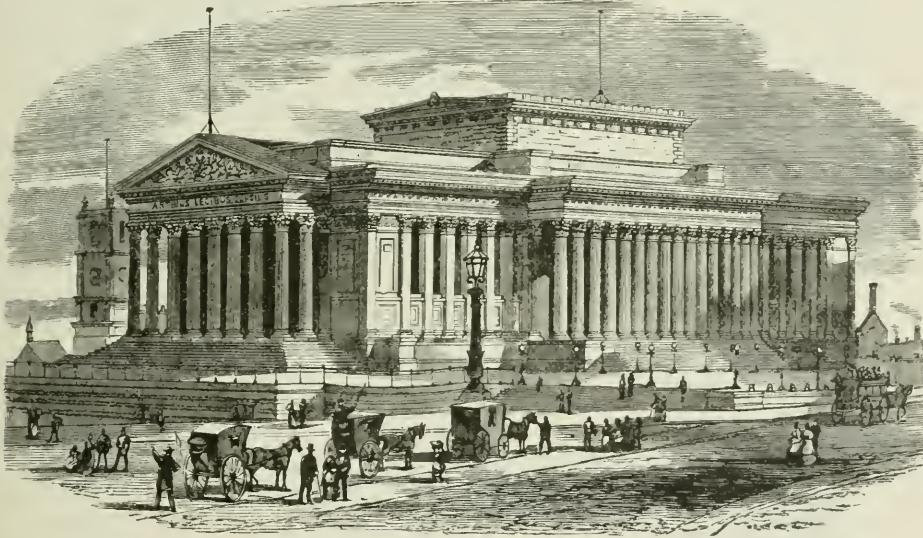


LIVERPOOL DOCKS.

extend for 5 miles along the river-side, and have an area of 1,000 acres, of which the basins, wet and dry docks, occupy 277 acres. Vast though these docks are, they no longer suffice for the trade of the Mersey, and others have been excavated at Birkenhead, on the Cheshire bank of the Mersey, and at Garston, above Liverpool. Whilst eight of these docks are thrown open to the general trade, there are others specially dedicated to America, the East Indies, Russia, or Australia, or respectively to the timber trade, the tobacco trade, or emigration business; and whilst certain quays are covered with bales of cotton, others are given up to sacks of corn, barrels of palm oil, or ground nuts. A stranger who spends a day in these docks, and in the warehouses which surround them, visits, in fact, a huge commercial museum, in which various articles are represented in bulk, and not by small samples.

Liverpool cannot yet claim precedence of London as the greatest commercial town of the world, though its export of British produce is more considerable, and its

Fig. 135.—ST. GEORGE'S HALL.



commercial fleet more numerous and powerful.* More than one-third of the tonnage of the whole of the United Kingdom belongs to the port of Liverpool, whose commercial marine is superior to that of either France or Germany. In order to facilitate the embarkation and disembarkation of travellers, a landing-stage, floating on pontoons, and connected with the land by six iron bridges, has been placed in the Mersey. This remarkable structure is nearly half a mile in length, and rises and sinks with the tide.

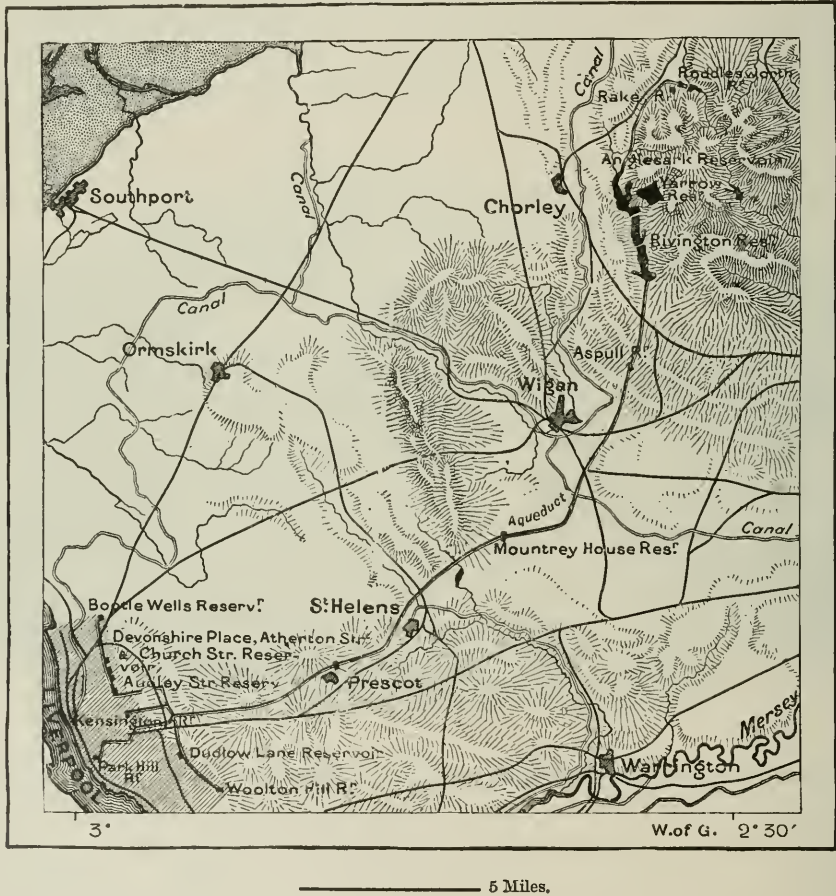
In 1720 scarcely one-fortieth of the foreign trade of England was carried on through the port of Liverpool. A century later about one-sixth of this trade had passed into the hands of the merchants established at the mouth of the Mersey, and at present they export about one-half of all the British produce that finds its way into foreign countries. The increase of population has kept pace with the expanding

* See Appendix.

commerce of the town, and the inhabitants are at present a hundred times more numerous than they were at the commencement of the eighteenth century. Including its suburbs, Liverpool is the second town of the United Kingdom. It altogether monopolizes certain branches of commerce. Nearly all the cotton of the world finds its way to Liverpool, and is thence distributed amongst the towns of continental Europe. Most of the emigrants who leave Europe embark at Liverpool. The principal articles of export are coal, salt, cutlery, fire-arms,

Fig. 136.—THE LIVERPOOL WATER WORKS.

According to H. Beloe. Scale 1 : 350,000.



machinery, china and earthenware, and textile fabrics of every description. The local manufactures contribute in a certain measure in feeding this export trade. There are iron foundries and brass works, machine shops, chemical works, breweries, and, above all, the ship-building yards on both banks of the Mersey.

Like most other large towns, Liverpool can show a few noble edifices. It has its public parks, a zoological and a botanical garden. Interesting, too, is one of the cemeteries, with catacombs cut out of the rock. Most prominent amongst its public buildings is St. George's Hall, in the style of a Greek temple. Near it

have been raised a monument to the Duke of Wellington, and statues of the Queen and Prince Albert. The Free Library and Museum, founded by Sir W. Brown, are in the same quarter of the town, and contain valuable collections of books, stuffed animals, antiquities, china, and paintings. The new Exchange Buildings are in the classic style, and surround a courtyard ornamented with a monument to Nelson. Foremost amongst educational institutions are the College, the Liverpool and the Royal Institutions, the latter with a gallery of paintings. The oldest church is that of St. Nicholas, with a remarkable lantern spire.

Liverpool, unfortunately, has not yet been provided with an ample supply of pure drinking water. The reservoirs constructed at an expenditure of nearly two million sterling at the foot of Rivington Pike, 20 miles north from the town, cover an area of 600 acres, and collect the drainage of 10,000 acres, but they are not sufficient. Supplemented by several springs, they only yield 28 gallons per head daily for a population of 650,000 souls, and a considerable portion of this is consumed by factories.* The corporation has consequently sought for some other source of supply, and after careful consideration the upper valley of Vyrnwy, or Verniew, which is tributary to the Severn, has been fixed upon, and will be converted into a huge reservoir of water for its use.

Liverpool, in addition to constructing several new docks, is at present carrying out another great work, namely, a railway tunnel, which will pass beneath the Mersey, and into its Cheshire suburb of Birkenhead. Much remains, however, to be done before Liverpool can be called a healthy town. Of every 1,000 children born only 540, or hardly more than half, attain the age of five years; and about 20,000 of the inhabitants live in cellars. Poverty, and the floating population of sailors of every nation, swell the criminal records. About 50,000 persons are annually taken into custody by the police, or one out of every 10 inhabitants—a proportion not met with in any other town of Europe.

Numerous smaller towns encircle Liverpool on the land side, and form its suburbs and favourite places of residence. Amongst these suburban towns and villages are *Toxteth*, *Wavertree*, *West Derby*, *Walton-on-the-Hill*, and *Bootle-cum-Linaere*. Following the low shore in a northerly direction, we pass the cheerful seaside villages of *Seaforth*, *Waterloo*, and *Great Crosby*, double *Formby Head*, and reach *Southport*, a great favourite with the people of Lancashire, who speak of it as of an English Montpelier. A pier stretches over a mile into the sea; there are a winter garden and an aquarium; and over 700 species of native plants grow on the sand-hills which shut in the town, which has *Birkdale* for its suburb.

Prescot, the birthplace of Kemble the tragedian, lies a few miles to the east of Liverpool. Watches are made here by machinery, and there are collieries in the neighbourhood. *Knowsley*, the family residence of the Earls of Derby since 1385, lies near it. *St. Helen's*, to the north-east of Prescot, has plate-glass, chemical, and copper works. Farther east still are *Ashton-in-Makerfield* and *Newton-in-Makerfield*. The former is engaged in the manufacture of locks, the latter has cotton-mills, iron foundries, and glass houses.

* H. Beloe, "The Liverpool Water Works."

The basin of the Ribble is less extensive than that of the Mersey, but it nevertheless contains a considerable population, and abounds in large manufacturing towns. Entering this basin from the south-west, we first reach *Wigan*, on the Douglas, the centre of the Lancashire iron and coal district, with huge iron works, cotton-mills, and collieries. One of the coal-pits in the neighbourhood of this town has the greatest depth of any in England, and the temperature at its bottom is never less than 93° Fahr. *Ince-in-Makerfield* and *Hindley* are smaller towns in the neighbourhood of Wigan, which engage in the same industries. *Ormskirk*, a market town of some importance, famous for its gingerbread, lies 10 miles to the west.

Blackburn, the principal town in the valley of the Darwen, is almost blacker and noisier than other towns of this region; but at all events it enjoys with the towns in its neighbourhood the advantage of being surrounded by breezy hills. Cotton-spinning is the leading industry here as well as at *Over* and *Lower Darwen* and at *Oswaldtwistle*, but a good deal of machinery is also made, and much coal won. Heald knitting is still carried on as a home industry. Blackburn was the birthplace of the first Sir Robert Peel, and of Hargreaves, the inventor of the spinning-jenny. Its public buildings are on a noble scale, and contain a museum and free library.

Accrington, though a neighbour of Blackburn, lies within the basin of the Calder, which, like the Darwen, pays tribute to the Ribble. It is a place of modern growth, with cotton-mills and chemical works, and has its satellites in *Church*, *Clayton-le-Moors*, and *Great Harwood*. *Burnley*, near the junction of the Calder and the Burn, in a broken and picturesque district, has a little woollen trade in addition to that of cotton. Many gentlemen's seats are in its vicinity, including that of the Towneley family, where casts of the Towneley marbles are kept. Ascending the Calder, we pass through *Brierfield* and *Nelson*, and reach the ancient little town of *Colne*, the Roman *Colunio*, close to the Yorkshire boundary. *Padiham*, an uninviting cotton town, is below Burnley, and is succeeded by the pretty village of *Whalley*, with the ruins of its famous abbey. The Jesuit College of *Stonyhurst* is in this neighbourhood, near the northern bank of the Ribble. *Clitheroe*, a few miles farther up the Ribble, is picturesque despite its few cotton-mills. It lies near the foot of the Pendle Hill (1,816 feet), a huge mass of carboniferous limestone, formerly supposed to be the resort of the Lancashire Witches. *Rubus chamemorus*, a semi-arctic plant, grows on the summit.

Descending the Ribble, we pass the ancient village of *Ribchester* (it represents the *Cocium* or *Rigodunum* of the Romans), and reach *Preston*, majestically seated upon the steep banks of the river, and at the head of its estuary. Preston is one of the leading manufacturing towns of Lancashire, as befits the birthplace of R. Arkwright, and carries on a considerable trade by sea. The wealth of the town, joined to the beauty of its position, has won for it the epithet of "Proud." The modern town-hall is a sumptuous building. The strike which took place here in 1853-54 was one of the most remarkable in history, for it lasted seven months. *Chorley*, to the south of Preston, has cotton-mills and waggon works, and is a place

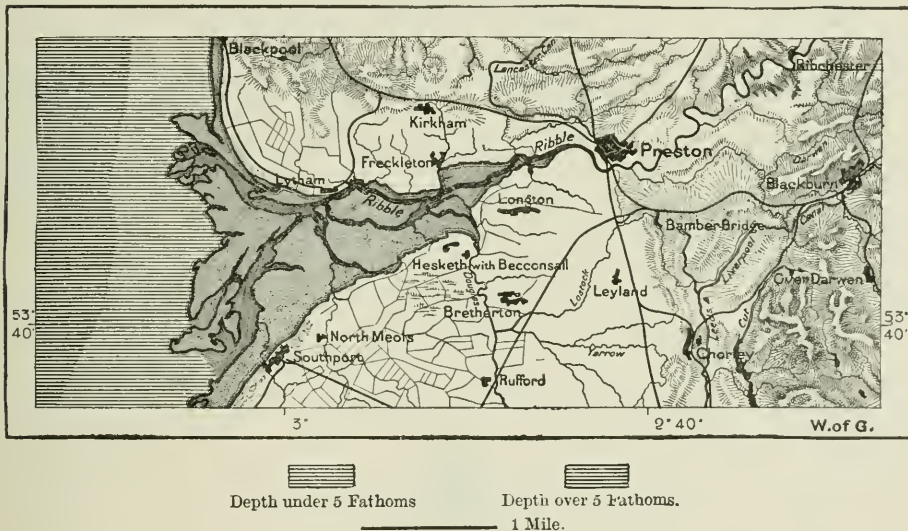
of some note, whilst *Leyland*, *Fulwood*, and *Kirkham* are mere villages with cotton-mills. *Lytham*, on the northern bank of the Ribble, attracts a few visitors as a sea-bathing place, but the favourite watering-place of Lancashire is *Blackpool*, a little farther north, where the usually flat shore rises into earthy cliffs, from whose summit may be enjoyed a view of the Irish Sea.

The road from Preston to Lancaster crosses the Wyre at *Garstang*, near which is Greenhaigh Castle.

Lancaster, the political capital of Lancashire, takes its name from the river Lune, or Lun, which washes its walls. It occupies the site of a Roman station—probably *Longovicium*—and is commanded by a modernised castle, whence may be enjoyed the magnificent panorama presented by the Welsh hills, the Isle of Man, and the Cumbrian Mountains. The town manufactures American cloth, leather, cocoa

Fig. 137.—PRESTON.

Scale 1 : 450,000.



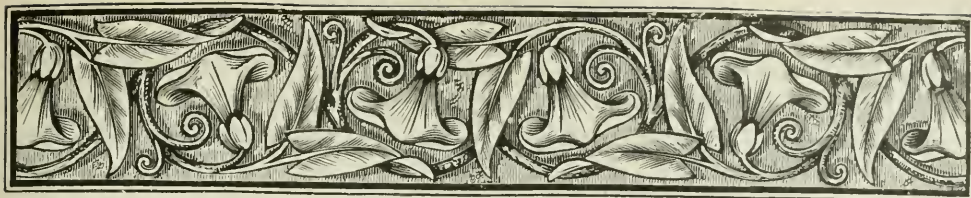
matting, furniture, silks, cottons, and waggons. A short railway connects Lancaster with its outlying suburbs of *Poulton-le-Sands* and *Morecambe*, on Morecambe Bay. Vessels of 300 tons burden are able to ascend the Lune with the tide as far as the quays of Lancaster, the maritime port of which is *Fleetwood*, a forsaken-looking place at the mouth of the Wyre, connected by a line of steam-packets with Belfast. Near it is the famous school installed in old Rossall House.

The detached portion of Lancashire "north of the Sands" (that is, those of Morecambe Bay, which are exposed, and can be crossed when the sea retires from the bay) is also known as *Furness*, from a famous old abbey, beautiful even in its present state of ruin, and seated in a country more beautiful still. *Ulverston* is the nominal capital of this district. A ship canal, lined by furnaces and paper-mills, connects it with Morecambe Bay. John Barrow, the arctic explorer, was born at Ulverston, and a monument has been raised to commemorate him. The

great town of this district, however, and one of those which has grown with astonishing rapidity, is *Barrow-in-Furness*, near the southern extremity of the Cumbrian peninsula, and at the east of Walney Island, which acts as a break-water to its roadstead. In 1846 Barrow was a poor fishing village, but the discovery of pure hematite ores led to the construction of iron and steel works. Ship-building yards followed, jute-mills were established, and the small village rapidly grew into a prosperous town, with docks which admit the largest vessels at any state of the tide. *Dalton*, a few miles to the north of Barrow, lies in the heart of the hematite iron district. *Broughton* is a quiet town at the head of the estuary of the Duddon, famous for trout and salmon. Farther inland, in the Lake district, are *Conistون*, delightfully situate at the head of Conistون Water and at the foot of the Old Man, with copper mines and slate quarries near it, and *Hawkshead*, a quaint market town at the head of Esthwaite Water. Archbishop Sandys and Wordsworth were educated at its grammar school.

Cartmel, in the eastern portion of Furness, has a famous priory church. *Holker Hall*, a mansion of the Duke of Devonshire, lies in its neighbourhood.





CHAPTER XI.

THE NORTH OF ENGLAND, THE CUMBRIAN MOUNTAINS, THE BASINS OF THE EDEN, THE TEES, AND THE TYNE.

(CUMBERLAND, WESTMORELAND, DURHAM, AND NORTHUMBERLAND.)

GENERAL FEATURES.

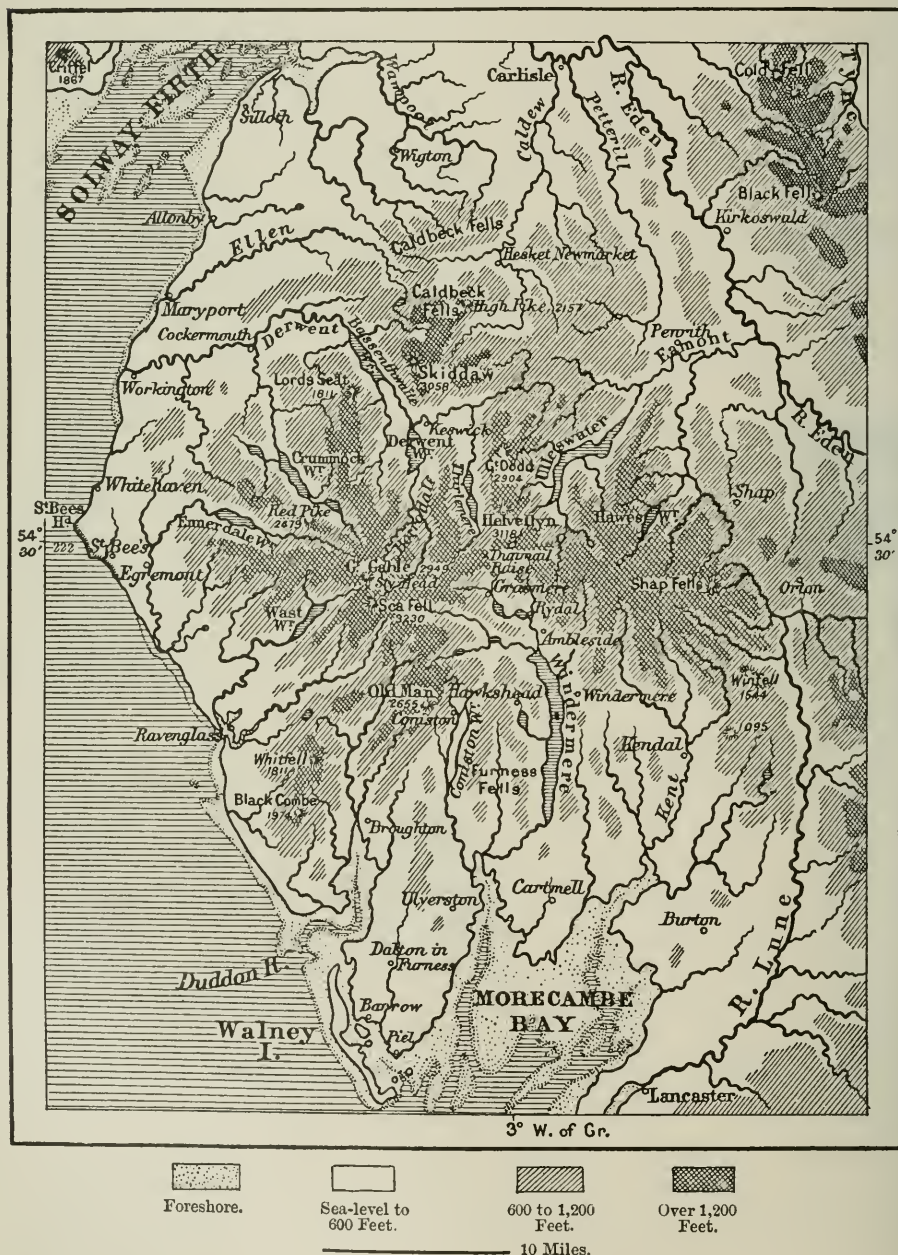
THAT part of England which lies to the north of the estuary of the Tees and Morecambe Bay forms a distinct geographical region of transition, which connects the south of the island with North Britain. The mountainous peninsula of Cumbria is still bounded by another gulf in the north, namely, the Solway Firth, which penetrates into the land to within 60 miles of the German Ocean. The tidal currents which ascend the rivers falling on the one hand into the Irish Sea, and on the other into the German Ocean, approach within 50 miles of each other.

The Pennine chain, which begins to the north of Derby, and bounds the basins of the Trent and Ouse on the west, separates farther north the basin of the Eden from that of the Tees, and finally coalesces with the Cheviot Hills on the Scotch frontier. The highest summit of the entire chain, the Cross Fell (2,928 feet), rises in this northern portion. But the Silurian and granitic mountains, which are attached to the "backbone" of England by a transversal ridge of moderate elevation, are more lofty still. When the weather is favourable the traveller who climbs these, the proudest mountains of all England, sees spread beneath him nearly the whole of the Irish Sea, together with the hills that bound it. Whilst ascending them he successively passes through different zones or climates. Starting from the smiling country, abounding in orchards, at their foot, he traverses the pine woods which clothe their lower slopes, and finally emerges upon the fells, which yield nought but ling and bracken. The topmost summits are clad with verdure only during summer and autumn, for in winter and spring they are either covered with snow, or their scant vegetation is tinged a russet brown by the frost. As they face the moisture-laden south-westerly winds, the amount of precipitation is enormous, averaging about 80 inches a year, and even reaching 16 feet in some localities, where the clouds are

entrapped in hollows on the mountain sides, from which they cannot escape. Torrent rains and violent snow-storms are phenomena of ordinary occurrence, and in the depth of winter it is often impossible to ascend the highest summits.

Fig. 138.—HYPSOGRAPHICAL MAP OF THE CUMBRIAN MOUNTAINS.

Scale 1 : 634,000.



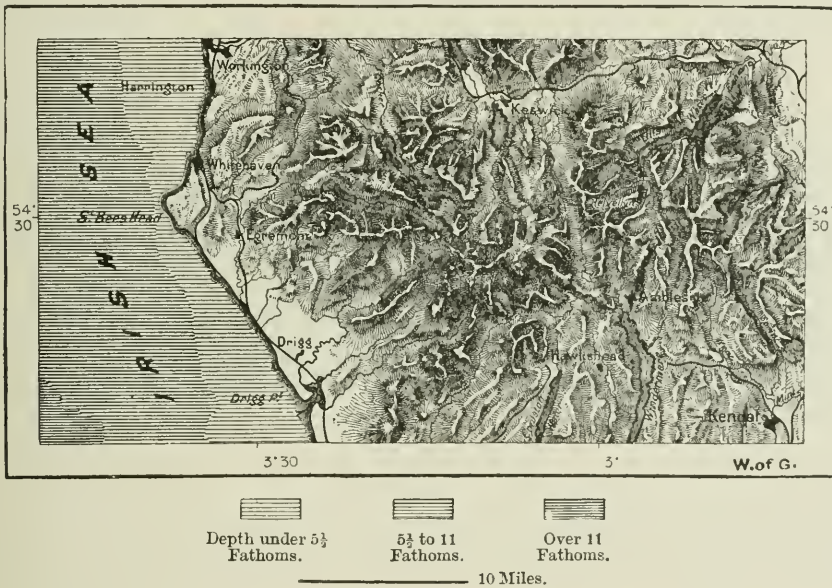
The boldest shepherds have refused at times to climb the mountain-tops in order to consult the rain gauges which have been placed upon them.*

* J. Fletcher Miller, *Philosophical Transactions*, 1851.

The torrents which run down the impermeable sides of these craggy mountains are the feeders of lakes which occupy deep cavities, reaching in several instances below the level of the sea. A slight subsidence of the land would convert these lakes into lochs or firths, such as we see at the present day along the coast of Scotland, and it is the opinion of geologists that previously to the last upheaval of the land they actually were firths, and ramified in the same manner as Morecambe Bay does to the present day. But it is not their geological genesis which renders these lakes so great an attraction. They are one of the glories of England not only because they are filled with translucent water, reflecting the islets which stud and the crags which enclose them, and are fringed with rich meadow lands backed by woods, but also because of their association with the poets who have sung their beauties. The lakes of Cumberland have

Fig. 139.—THE CUMBERIAN MOUNTAINS.

Scale 1 : 700,000.



given birth to a literary "school," that of the Lakists, which, like all schools, includes, by the side of true poets who have given expression to that which they felt, a crowd of tedious imitators, who merely look to the verses of their predecessors for a revelation of nature. The names of Wordsworth, Coleridge, Southey, De Quincey, and Martineau will for ever remain associated with Windermere, Grasmere, Thirlmere, Derwentwater, and Ulleswater. All these lakes are drained by rivers, either into the Eden or Derwent, or direct into the sea, for precipitation is far in excess of evaporation. Manufactories have not yet sprung up on their banks and defiled their water, but the artists who have settled down in the district, and the devout visitors who explore the scenery described in the verses of their favourite poets, may not be able much longer to defend them against avaricious speculators. Already factories have been established in the

towns which surround the district, and they are gradually extending into the interior of the country.

The coal measures which extend along the coast to the south of the Solway Firth are of considerable importance. At some former epoch the carboniferous formation covered the whole of the Pennine range, and extended from the shores of the German Ocean to the Irish Sea; but, owing to the displacement of strata and the action of denudation, there are now two separate basins, viz. that of Cumberland, and that of Durham and Northumberland. The Cumbrian coal mines are somewhat famous on account of their submarine galleries. At Whitehaven the levels driven by the miners extend for a distance of nearly 2 miles off the shore, and lie at a depth of 650 feet beneath the level of the sea; and the entire network of submarine galleries and levels has a length of several hundred miles. The roof which intervenes between the miners and the floor of the ocean varies in thickness between 230 and 720 feet, and is amply sufficient to preclude every idea of danger. Still the water of the ocean occasionally finds its way through fissures into the mines, but in most instances the miners succeed in calking the leaky places. The mine of Workington, however, which extended for 5,000 feet beneath the sea, had a roof too feeble to resist the pressure of the superincumbent waters. On the 30th of June, 1837, it suddenly gave way, the mine was inundated, and the miners barely escaped the flood which pursued them. One of these galleries actually extends for a distance of 9,604 feet beneath the sea. The quantity of workable coal still contained in these submarine seams is estimated to amount to 100,000,000 tons.*

The coal-field of Durham and Northumberland, which is traversed at intervals by parallel dykes of basalt, is more actively worked than any other in Europe. It yields double the quantity of coal produced by all France, and is the principal source of supply for the metropolis. Four collieries in the environs of Durham supply each 1,500,000 tons of fuel annually, and the nine principal seams now being worked in the basins of the Tees and Tyne still contain at least eight or ten milliards of tons of coal within easy reach—a quantity sufficient to last for centuries at the present rate of working. The coal beds extend far beneath the sea; and statisticians, in calculating the supply of the future, have assumed that all the coal within 4 miles of the coast can be got at.† The collieries, and in the valley of the Tees the iron mines, have attracted a considerable population. The towns press upon each other, the roadsteads and quays are crowded with shipping, and even in England there are not many districts in which industry has achieved such wonders.

Yet for many centuries this was one of the poorest and least-peopled districts of Great Britain—a district of permanent warfare and unexpected border raids, where even in time of peace the inhabitants were obliged to be on their guard. The fact that the great historical highway between England and Scotland passes along the eastern foot of the Pennine range and the Cheviot Hills sufficiently

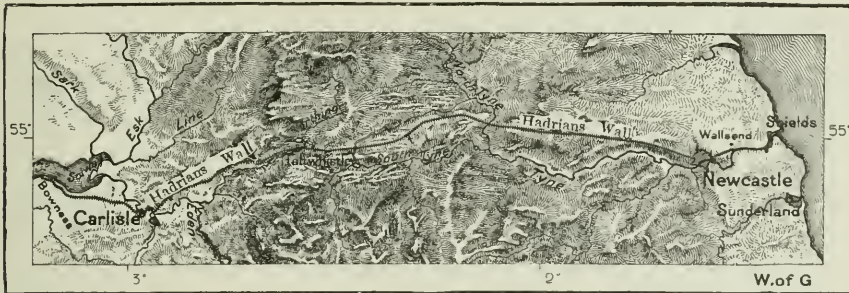
* Smyth; Hull, "Coal Fields of Great Britain."

† Ramsay; Elliot; Forster; Hull.

accounts for this state of affairs. The country to the west of that great road was too rugged and too rich in natural obstacles to be adapted to the movement of armies. The war-path consequently lay on the eastern slope, and the region through which it passed was frequently laid waste. Extensive tracts of territory remained altogether unoccupied: they were "marches," similar to those which in another part of Europe separated Avars from Germans, and Slavs from Russians. Extensive heaths still recall the time when the two kingdoms were almost perpetually engaged in war, and the old buildings which we meet with in the country districts are constructed so as to be able to sustain a siege. The nearer we approach the Scotch border, the more numerous are these towers of defence. Not only the castles of the great lords, but also the simple homesteads of the farmers, churches, and monasteries, were fortified. Many of the castles could be entered only by means of ladders, so great was the fear of their inhabitants of a surprise. Buildings of this kind existed during the Middle Ages in nearly every country frequently ravaged by war. The most southern of these towers of defence stood

Fig. 140.—HADRIAN'S WALL.

According to C. Preece. Scale 1 : 900,000.



on the northern frontier of Yorkshire, on the southern bank of the Tees, and it was only at such a distance from the Scotch border that the inhabitants felt secure from unexpected attacks.*

The fortunes of war have caused the frontiers between the two kingdoms to oscillate. The actual boundary has of course been drawn at the dictation of the state which disposed of the most powerful armies. Commencing at the Solway Firth, it climbs the crest of the Cheviot Hills, but instead of being drawn from their eastern extremity to the nearest headland on the coast, it abruptly turns to the north, and follows the course of the Lower Tees. The most natural boundary is that which the Romans laid down when they constructed the wall which extends from the Solway Firth to the mouth of the Tyne, to serve as a second line of defence to the provinces they held. This wall, built by the Emperor Hadrian, and accompanied throughout by a military road, was still in a fair state of preservation towards the close of the sixteenth century, but in our own

* Yorkshire, *Edinburgh Review*, vol. cxxiii.

days is limited to a few blocks of masonry, some of them 10 feet in height. In its eastern portion, where the country, owing to the incessant wars of the Middle Ages, no less than because of its natural sterility, has only recently been peopled, the wall can still be traced; but not so in the west, where the ploughshare has almost obliterated it, so that it was not even easy to ascertain the sites of the Roman stations.* In certain localities, however, the ancient ditch, now overgrown with grass upon which sheep browse, may still be seen. Two piers of a bridge over the Northern Tyne are the principal ruins remaining of this ancient work. Excavations have furnished antiquaries with medals and numerous inscriptions, which have thrown much light upon the history of Great Britain whilst under the dominion of the Romans.† Hadrian's wall was from 6 to 10 feet thick, and averaged 18 feet in height. A ditch, 36 feet wide and over 12 feet in depth, extended along its northern side, whilst a narrower ditch, with entrenchments, accompanied it on the south. Fortresses, stations, and posts succeeded each other at short intervals. The wall terminates in the east close to the town of Wallsend, in the centre of the coal basin of the Tyne.

The inhabitants of Northumberland, whose country has so frequently been a bone of contention between Scotch and English, resemble their northern neighbours in customs and language, and in the people, no less than in the aspect of the country, do we perceive the transition between south and north. In the west, on the other hand, the contrast is very great. The Cumbrians remained independent for a considerable period, and, sheltered by their mountains, were able to maintain their ancient customs. Even after the Norman conquest they talked a Celtic tongue differing but little from that of the Welsh. Some of the noble families of the country boast of their pure Saxon descent, and look down upon the less ancient nobility of Norman creation. Amongst the peasants there were, and are still, a considerable number of freeholders, or "statesmen," who have cultivated the land they hold for generations past.‡ These men were distinguished, above all others, by their noble bearing, the dignity of their language, and the proud independence of their conduct. Their number, however, has greatly diminished, for the large proprietors are gradually absorbing the smaller estates.

TOPOGRAPHY.

WESTMORELAND, the smallest of these northern counties, is divided by the valley of the Eden into two mountain districts, of which the eastern embraces some of the most forbidding moors of the Pennine chain, whilst the western includes the high peaks and deep ravines of a portion of the Cumbrian group. Within this latter rises Helvellyn (3,118 feet), the second highest of the English mountains, and two large lakes, the Ulleswater and the Windermere, add to its attractions. A range of lower moorlands binds together these mountain districts. To the south of this range, which is crossed by the Pass of Shap Fell, the rivers Kent and Lune

* Thomas Wright, "The Celt, the Roman, and the Saxon."

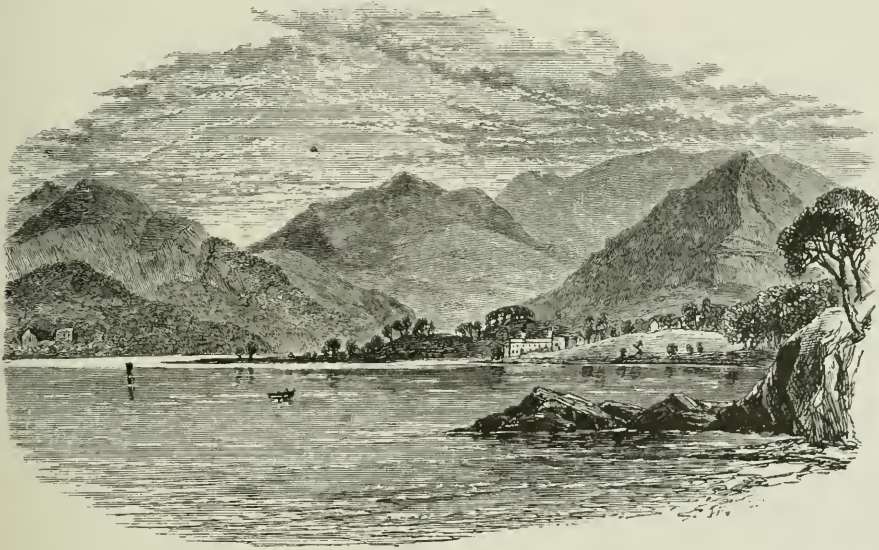
† Collingwood Bruce, "The Roman Wall, Barrier of the Lower Isthmus."

‡ Wordsworth; Emerson, "English Traits."

drain an important district of the county into Morecambe Bay. The moist climate is more favourable to cattle-breeding than to agriculture. The mineral products include lead, a little copper and iron, beautiful marble, and roofing slate. The manufactures are on a small scale.

Kendal, the only large town of the county, stands on the declivity of a hill near the banks of the river Kent, which flows into Morecambe Bay at *Milnthorpe*, the only seaport. It is a prosperous place, with various scientific institutions, and the ruins of a castle in which Catherine Parr was born. The woollen industry introduced by Flemish weavers in the fourteenth century still flourishes, and, in addition to cloth, there are manufactures of linseys, carpets, fancy stuffs, combs, fish-hooks, and clogs. But that which has made its reputation is the beautiful country in which it is situate. The river Kent, after which the town is named, rises in a small lake, the Kentmere; but the lake in this

Fig. 141.—THE HEAD OF WINDERMERE.



neighbourhood most sought after is the Windermere. *Bowness* and *Ambleside*, on its shore, are villages of hotels, affording ample accommodation to the crowds of tourists who visit them. Even more romantic are the environs of *Grasmere*, at the head of a small lake which drains into Windermere, and in the midst of the most impressive mountain scenery. Wordsworth lived at the neighbouring hamlet of *Rydal*, and he and Coleridge are buried in the churchyard of St. Oswald.

Kirkby Lonsdale, in the fertile valley of the Lune, is the only other place of note in the southern portion of the county. Carpets and blankets are manufactured, and marble is quarried there.

Appleby, beautifully situated on the river Eden, is the principal town in the northern part of the county, and its capital. It is very ancient, dating back to the Roman age, but has dwindled down into a small country town, with an old

castle crowning a wooded eminence beside it. The grammar school was founded by Queen Elizabeth. The manufacture of woollens is carried on to a limited extent. Other towns on the Eden are *Brough-under-Stainmore*, an old Roman station in Watling Street, and *Kirkby Stephen*, within easy access of the moors, and hence much frequented by sporting-men. Quarries and mines are near both these places. *Shap*, a straggling village almost in the centre of the county, and at the foot of the Shap Fells, has slate and other quarries. *Clifton* is a village on the northern border, near which took place the conflict of Clifton Moor in 1745. Lowther and Brougham Castles are in its vicinity, the latter at one time one of the most formidable of frontier fortresses.

CUMBERLAND extends from the desolate moorlands of the Pennine chain to the Irish Sea in the west, and includes within its borders the highest mountains of England* and most of the English lakes. A broad and passably fertile plain, traversed by the Lower Eden, separates the moorlands from the Cumbrian Hills, and in this plain grew up the principal towns until the discovery of coal shifted the centre of population to the westward. Besides coal and iron, the mines and quarries yield lead, plumbago, silver, zinc, slate, marble, and various other building stones. The cotton factories, iron works, foundries, and machine shops are of considerable importance. Here, as in the neighbouring county of Westmoreland, a large portion of the land is the property of "statesmen," or "lairds."

Carlisle, the chief town of the county, occupies a fine position on the Lower Eden, about 8 miles above its mouth into Morecambe Bay. After having been a Roman station—*Luguwallum*—Carlisle, under the name of *Caer-leol*, became a Saxon city, and according to the legends it was a favourite residence of King Arthur. During the Middle Ages, and even as recently as the eighteenth century, when the last effort was made to restore the Stuarts, Carlisle, owing to its position on the Scotch border and on a navigable river, was a place of very great strategical importance. The castle occupies an eminence overlooking the river Eden, and has been extensively altered; but the keep, built by William Rufus, remains to the present day. The cathedral is the most interesting building of the town, but it is small. Carlisle manufactures cottons, gingham, and hats; but its biscuit bakeries, despite their extent, are not equal in productiveness to the single manufactory at Reading. A navigable canal and a railway join the old border fortress to Port Carlisle, on Morecambe Bay, which is spanned here by a formidable railway viaduct.

Penrith, in the fertile valley of the Eamont (which comes from the Ulleswater, and flows to the river Eden), and on the borders of Inglewood Forest, has its ruined castle, like most other towns in this border county. *Brampton* is an old town on the river Irthing, which joins the Eden near Carlisle. It has cotton factories and collieries. Near it are Naworth Castle and the ruins of Lanercost Abbey. Higher up in the rocky valley of the Irthing, and close to the Northumberland border, is *Gilsland Spa*, with its sulphuric and chalybeate springs.

We now turn westward towards the coast. *Holme Cultram*, at the mouth of the

* Sca Fell, 3,230 feet; Helvellyn, on the Westmoreland border, 3,118 feet; Skiddaw, 3,058 feet.

Waver, is remarkable for its old abbey church. *Allonby* enjoys some favour as a watering-place. *Maryport* is one of the coal-shipping towns of Cumberland, at the mouth of the Eller, with a harbour enclosed between two piers. Cottons and lead pencils are manufactured, and ships built. The coal mines, upon which the town mainly depends for its prosperity, lie at *Dearham*, a couple of miles inland. *Workington*, another coal-shipping port, is at the mouth of the Derwent. *Whitehaven* is

Fig. 142.—SCREES AT WASTWATER, CUMBERLAND.



more important than either of the above, and besides shipping immense quantities of coal and iron ore, engages in the manufacture of iron, canvas, cottons, ropes, and other articles. The coal mines extend under the sea. Much of the coal shipped from Whitehaven is brought from the colliery town of *Cleaton Moor*, whilst *Egremont*, a few miles to the south, supplies hematite iron ores. During the American War of Independence in 1778, Paul Jones, the famous privateer, had the audacity to land at Whitehaven, where he spiked the guns and set fire to two English ships

which he found in the harbour. *St. Bees*, an interesting old village to the south of Whitehaven, is widely known as the seat of a college for the training of Church of England clergymen. *Ravenclasse*, on a shallow bay into which the Esk and the Irt (the latter the emissary of Wastwater) discharge themselves, engages in oyster-fishing and the coasting trade. It is a quiet place, whilst *Millom*, on the estuary of the Duddon, rings with the noise of iron and steel works.

We now enter that portion of the county which is so famed for its scenery, and the capital of which is *Keswick*. Situate in a beautiful vale under Skiddaw, and near the foot of Derwentwater, one of the most charming lakes, Keswick

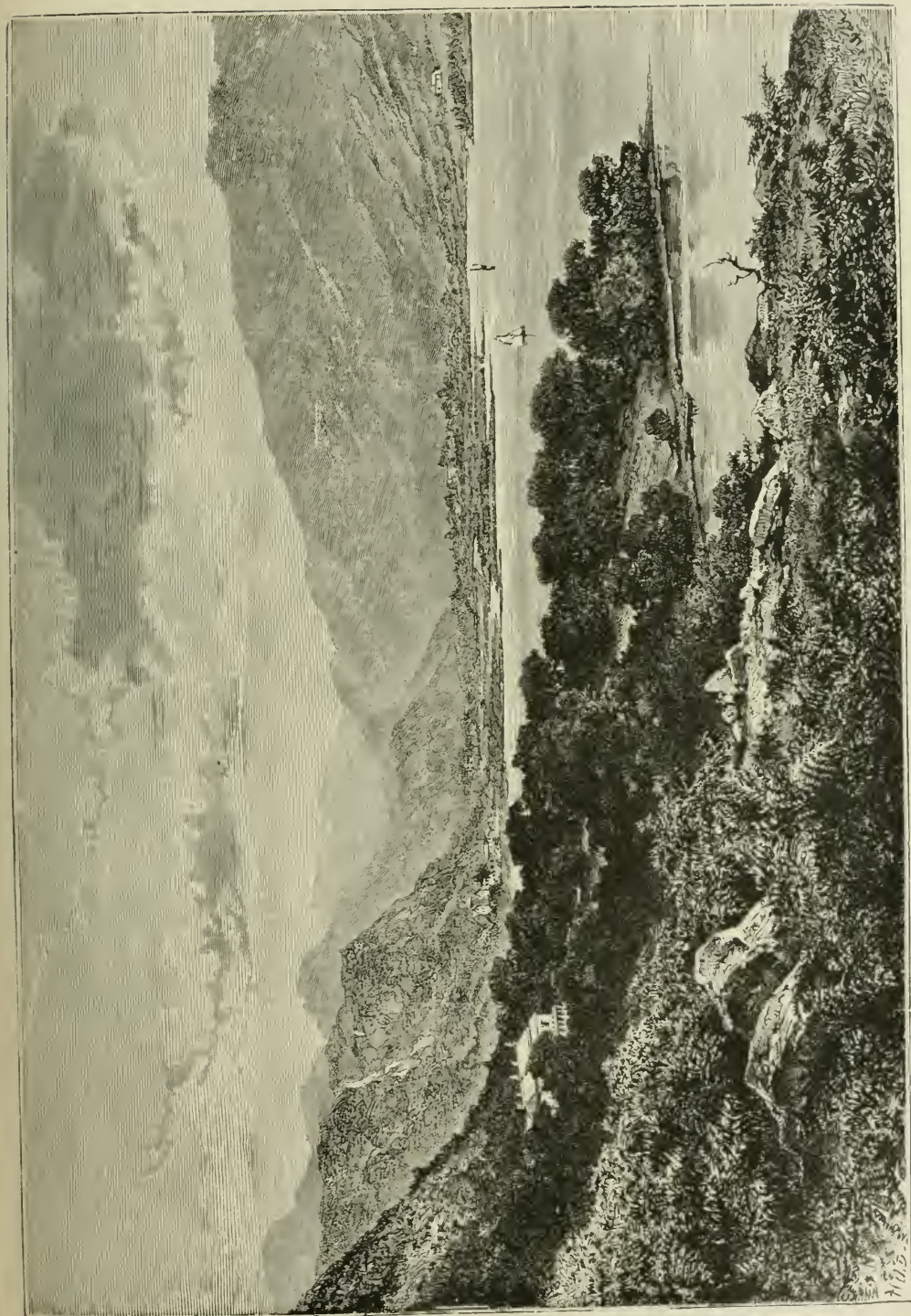
Fig. 143.—THE FALLS OF LODORE.



has naturally become the principal head-quarters for tourists. Amongst the spots most frequently visited are the Falls of Lodore, near the head of the lake, immortalised by Southey's well-known lines commencing —

“How does the water come down at Lodore?”

Greta Hall, where Southey lived from 1803 till the time of his death, stands near Keswick. The Upper Derwent, in its course to Derwentwater, flows through the beautiful valley of Borrowdale, which formerly, before the mines in Siberia had been discovered, supplied the best “wadd,” or plumbago, for the manufacture



DERWENTWATER.

of lead pencils. The Bowder Stone—a huge erratic block, weighing 2,000 tons—lies at the entrance to this valley.

The Derwent, below Keswick, flows through Bassenthwaite Water, and then enters the manufacturing town of *Cockermouth*, prettily situated at its confluence with the Cocker. There are cotton, woollen, and paper mills. The ruins of the castle, dismantled in 1648, are very extensive. Cockermouth was the birthplace of Wordsworth.

The only towns which remain to be noticed are *Wigton*, 10 miles to the south of Carlisle, which has a Quakers' Academy, and *Alston*, in the extreme east of the county, on the Southern Tyne, which belongs geographically to Northumberland, and is known for its lead mines, the property of Greenwich Hospital.

DURHAM, bounded on the south by the Tees, and on the north by the Tyne and its tributary Derwent, is traversed in its centre by the Wear. It is occupied to a large extent by heathy moorlands, but the valleys and the south-eastern portion of the county are fertile. This deficiency of cultivable land is, however, amply compensated for by the mineral treasures buried in the soil. The western mountainous part of the county is rich in lead, whilst its centre is occupied by a broad band of coal measures extending from the Lower Tyne to the Tees. Agriculture is carried on with much spirit. The Teeswater variety of short-horned cattle is one of the best in the kingdom, and the native sheep are large, and produce fine combing fleeces. The manufactures are various, but every other branch of industry is dwarfed by huge iron works, busy machine factories, and noisy ship-yards for the construction of iron vessels.

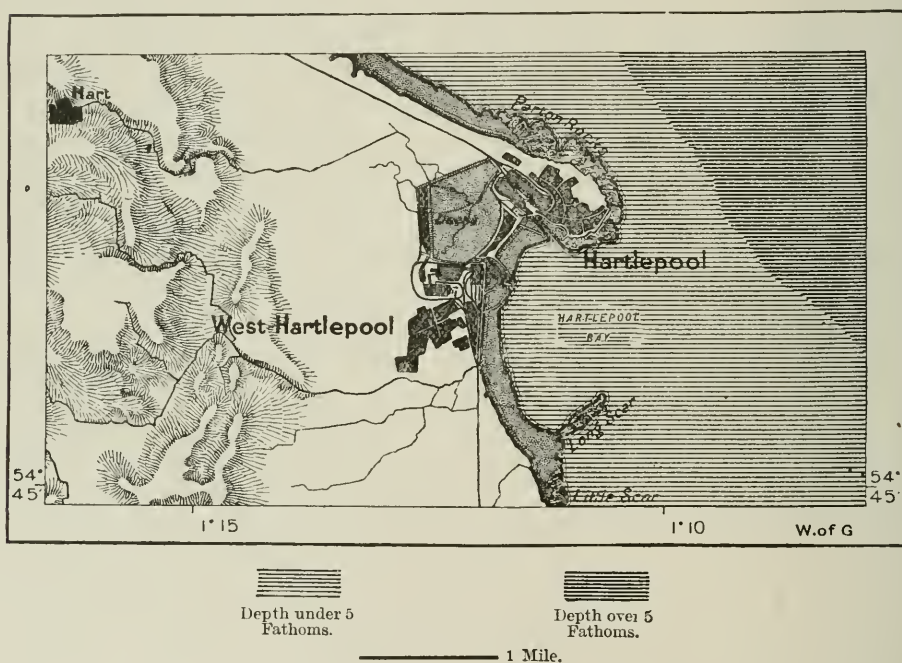
The Tees rises on the eastern slope of Cross Fell, the giant of the Pennine Mountains, and some of its upper valleys are deservedly renowned for picturesque scenery. Soon after entering Durham the river expands into a narrow lake, bordered by sterile moorlands, and then rushes down in a series of wild cataracts, known as the Caldron Spout. A few miles lower it forms the High Force (50 feet), the finest waterfall in Eastern England. It passes *Middleton-in-Teesdale*, near which are lead-mills, and then washes the foot of the declivity upon which stands the ancient city of *Barnard Castle*. The castle, now in ruins, was built 1112-32 by Bernard Baliol, and was at one time a stronghold of considerable importance. Close to it rise the modern museum and picture gallery, the contents of which are for the most part the gift of the owner of the neighbouring Streatham Castle. The town has a few manufactures, but it is only when we reach Darlington and Stockton, on the Lower Tees, that we enter one of the great industrial districts of Northern England. *Darlington*, on the Skerne, a few miles above its confluence with the Tees, is one of the principal seats of the Quakers, whose influence there is considerable. The town lies in a fertile country, and is one of the busiest manufacturing centres of the north. There are factories for building locomotives, blast furnaces, and rolling-mills—Durham supplying the coal; the Cleveland Hills, on the Yorkshire side of the Tees, the iron and iron ore. The railroad which joins Darlington to *Stockton-on-Tees* is the oldest in the world, having been opened in 1825, or four years before railway communication was established between Liverpool

and Manchester. Stockton, 4 miles above the mouth of the Tees, is joined by a bridge to South Stockton, in Yorkshire, and has iron works, ship-yards, sail-cloth factories, and glass houses. Near Stockton are the village of *Billingham*, with an old Norman church, and *Wynyard*, the Grecian mansion of the Earl of Lonsdale. *Port Clarence*, at the mouth of the river, has iron works, and exports much coal. The Bay of the Tees is much cumbered with sand-banks, but its navigation is rendered safe by lights, buoys, and embankments.

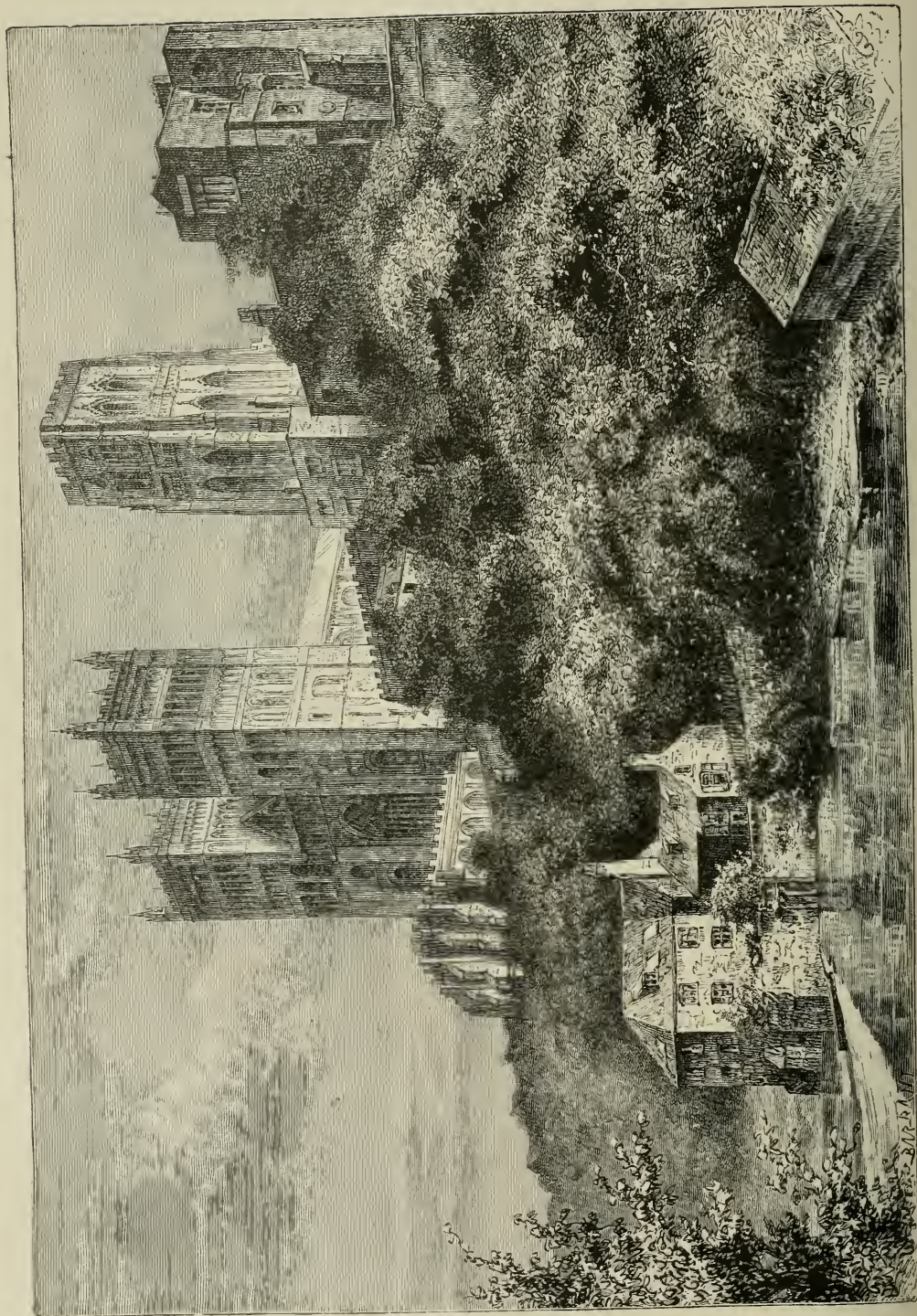
Turning north from it, we pass the pretty bathing-place of *Seaton Carew*, with beautiful sands and the remains of a submerged forest, and reach *Hartlepool*, proudly seated upon a bold promontory, whence we overlook a wide expanse of the sea and wild country backed by the Yorkshire hills. An opulent city in the

Fig. 144.—HARTLEPOOL.

Scale 1 : 85,000.



time of the early Norman kings, Hartlepool in course of time fell from its high estate, and at the beginning of the present century had hardly 1,000 inhabitants. The leading place in the commercial movements of England, which it has taken since 1832, is wholly due to the opening of coal mines in its vicinity, and to the construction of docks, quays, and warehouses. The present town of Hartlepool is altogether a creation of modern times. Its docks, accessible to vessels drawing 26 feet of water, partly occupy an ancient inlet of the sea, and quite a new town, West Hartlepool, has sprung up to the south of them. Hartlepool imports corn, flour, timber, and live animals, and exports in return coal and the produce of its iron and engineering works. Ship-building is actively carried on. *Throston* is a small town to the westward, and almost a suburb of Hartlepool.



DURHAM CATHEDRAL.

The only place of note along the rather tame coast between Hartlepool and Sunderland is *Seaham*, near which are important collieries.

The river Wear, with all its tributaries, lies wholly within the county of Durham. Rising near the Kilhope Law, it first flows through the weird and picturesque Weardale, and then, forcing itself a passage through a succession of gorges, finds its way to the German Ocean. Castles and parks are numerous along its banks, and alternate with collieries and iron works, but notwithstanding manufactories and the unsightly heaps of slags, its valley still remains the Arcadia of England. *Stanhope*, in the upper part of the valley, depends upon the lead mines and quarries in its neighbourhood. On reaching *Wolsingham* we first enter the coal and iron region. All around it, as well as about *Towlaw*, to the north-east of it, coal, iron, and limestone are found in abundance. *Bishop Auckland*, prettily seated on a hill, has an old castle, one of the manorial residences of the ancient Bishops of Durham, standing in the midst of an extensive park. The bridge which spans the river at this town was built upon Roman foundations by Bishop Skirlaw in 1388. Collieries and iron works abound in the vicinity of Auckland, one of their principal centres being *Spenny Moor*, to the north-east. The Wear here abruptly turns to the northward and penetrates a narrow gorge, formerly defended by the Roman station of *Vinovium*, upon the site of which stands the village of *Binchester*.

On leaving the gorge the river once more winds between gentle hills until it approaches the bold promontory upon the summit of which rise proudly the Norman cathedral and the keep of the castle built by William the Conqueror, and which subsequently became the residence of the bishops. Since 1833 the castle has been occupied by a university, which Cromwell intended to establish, and which owes its origin to the enormous increase in the revenues of Durham Cathedral, mainly derived from collieries. The University of Durham enjoys the same privileges as Oxford and Cambridge. It possesses a library rich in precious manuscripts, a museum, and an observatory, and students are able to pursue their studies at a far less expense than either at Oxford or Cambridge. Notwithstanding this the university is very little frequented, and this appears to be owing to the servility with which the mechanical routine followed at the older universities has been copied. The organization of the University of Durham is altogether under the direction of the clergy, and the chapter of the cathedral virtually governs it.*

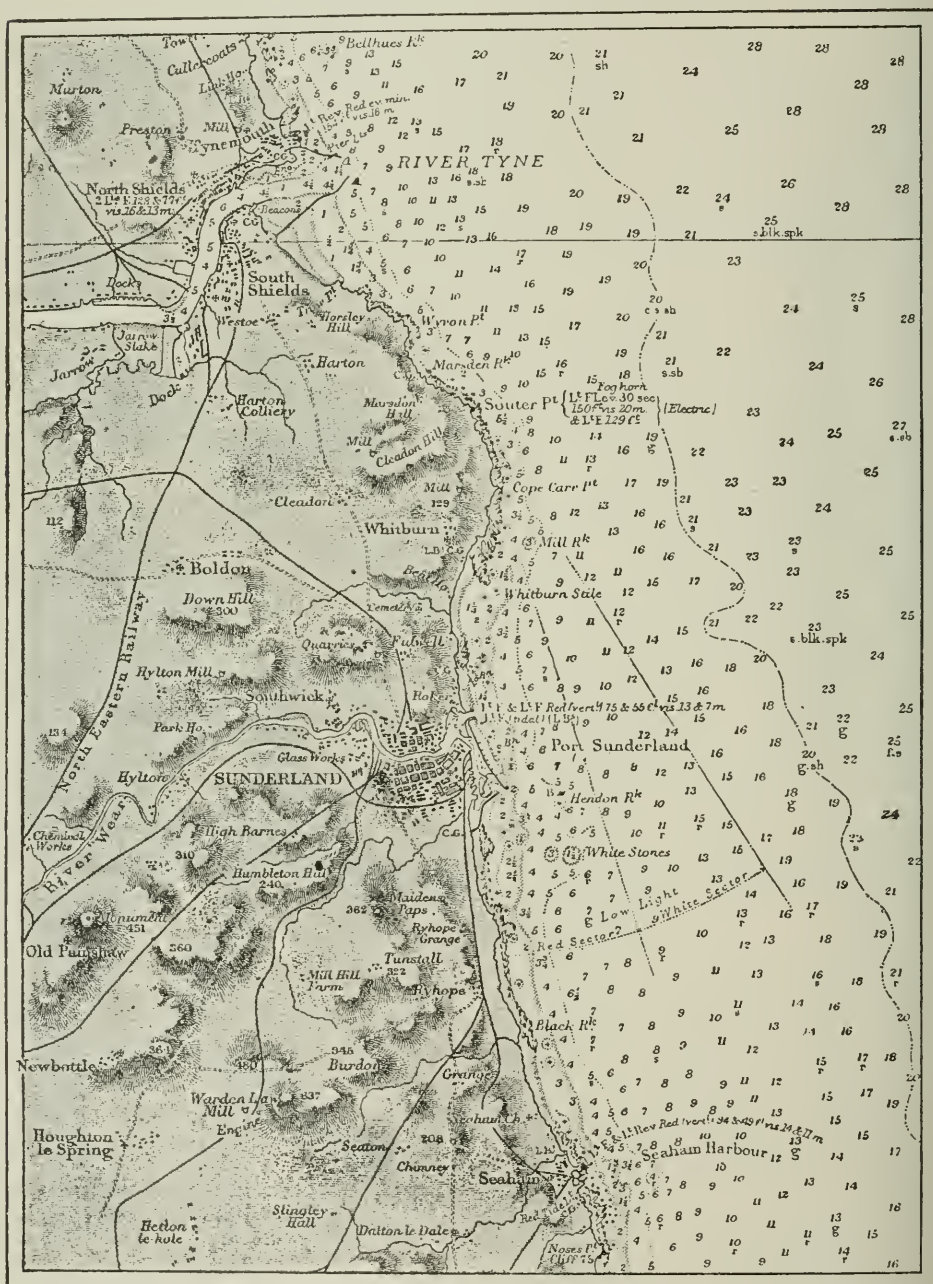
Durham has carpet and woollen manufactories and iron works. Collieries are numerous in its vicinity. A few miles to the west of it stand the remains of Neville's Cross, where the "Battle of the Red Hills" was fought in 1346. Some of the weapons used on that occasion are preserved at the ancient castle of the Nevilles at Brancepeth, to the south. Ascending the valley of the Browney, which joins the Wear above Durham, we pass Ushaw College, a Roman Catholic seminary founded in 1808 on a bleak and barren hill, and finally reach the small colliery town of *Lanchester*, near which are extensive remains of the Roman station of *Epidæum*.

* Demogeot et Montucci, "De l'Enseignement supérieur en Angleterre et en Écosse."

Chester-le-Street, on the Wear below Durham, is supposed to have been the *Condercum* of the Romans. A pleasant country town formerly, it has expanded

Fig. 145.—THE DURHAM COAST BETWEEN SUNDERLAND AND THE TYNE.

From an Admiralty Chart, Scale 1 : 120,000.



into a place of collieries and iron works like its neighbour, *Houghton-le-Spring*, to the eastward.

The mouth of the Wear is occupied on both sides by the great city of *Sunderland*—which consists of Sunderland proper; Bishop Wearmouth, on the south bank; and Monkwearmouth and Southwick, on the north bank of the river—and is only inferior to Newcastle as a coal-shipping port. Its vast docks and the river are at all times crowded with vessels, and only London, Liverpool, and the Tyne ports surpass it in the amount of their shipping. Formerly Sunderland pointed with pride to its iron bridge, which spans the river Wear in one stupendous arch of 237 feet, and at a height of 100 feet above the water; but constructions of this kind have become numerous in an age of railways. Far more singular is the lighthouse on the southern pier, which, notwithstanding its weight of 338 tons, was moved bodily a distance of 300 feet. Sunderland is an important manufacturing town. The ship-yards employ several thousand workmen, and there are glass houses, machine factories, iron-mills, and foundries.

The coast between Sunderland and the Tyne presents some striking scenery. At Roker curious caverns abound in the limestone rock, and to the north of the cheerful watering-place of *Whitburn* are the wild and striking Marsden Rocks, one of them forming an archway beneath which boats can pass.

The valley of the Derwent, which joins the Tyne above Newcastle, is rich in collieries and iron works. The principal towns within its basin are *Consett*, *Benfieldside* (opposite *Shotley Bridge*), on the Northumberland side of the river, and *Leadgate*. The Tyne bounds the county on the north; but though it forms a civil boundary, the towns on both banks are engaged in the same industries, and may all of them be looked upon as dependencies of Newcastle. Passing the colliery towns of *Ryton* and *Blaydon*, the Tyne flows between Newcastle and its southern suburb *Gateshead*, with machine factories, chemical works, iron foundries, and glass houses. *Felling* is passed below Gateshead, and then we reach *Jarrow*, a large town with docks, ship-yards, chemical works, and paper-mills, interesting as the scene of the labours of the Venerable Bede, who was born at the neighbouring village of *Monkton*. *South Shields*, at the mouth of the Tees, connected by a steam ferry with North Shields, on the opposite side of the river, has ship-yards and other industrial establishments, and exports large quantities of coal. The “ballast hills” near the town are interesting to botanists, for many exotic plants grow upon them from seed carried thither in the ballast discharged from vessels coming from foreign parts.

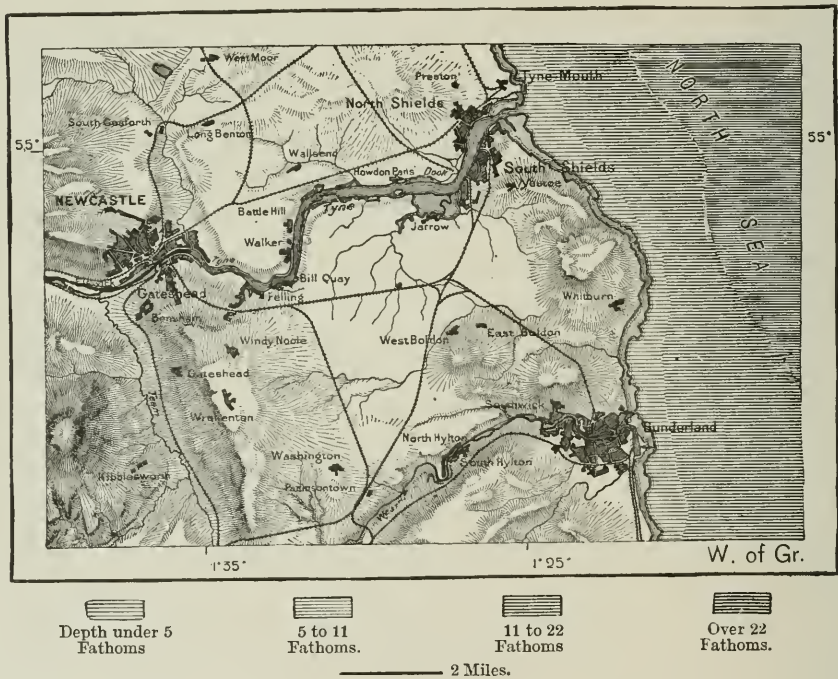
NORTHUMBERLAND, the northernmost county of England, extends along the German Ocean from the Tyne to the Tweed. The entire western half of it is occupied by mountain moors, producing hardly anything but heath, except in the Cheviots, which are distinguished for their fine verdure. Agriculture is possible only in the narrow valleys which intersect these hills. The maritime portion of the county is more favourably circumstanced, and the soil, consisting of strong clayey loam, is for the most part very fertile. Yet in no other part of England have arable husbandry and stock-breeding made more progress, principally owing to the large size of the farms and the leases which secure to the tenants the full results of their labour. The great coal-field which extends across the Tyne to

the sea-coast has materially added to the wealth of what would otherwise be a purely agricultural county, and given rise to important industries. Of these the construction of machinery, the building of iron ships, and the making and founding of iron take the lead, and in comparison with them the potteries, glass houses, brass foundries, artificial manure works, and paper-mills are comparatively unimportant.

Newcastle-on-Tyne, with its satellite towns, forms one of the greatest agglomerations of houses and factories in England. The Tyne between it and the sea, 8 miles below, resembles an elongated dock rather than a river, and its quays are at all times crowded with shipping. Towns and groups of factories succeed each

Fig. 146.—SUNDERLAND, NEWCASTLE, AND THE MOUTH OF THE TYNE.

Scale 1 : 250,000.



other in rapid succession along both banks of the river, and at night their flaring furnaces present a scene of uncanny grandeur. Opposite Newcastle, as already remarked, lies Gateshead; then come the houses of Felling, likewise on the Durham bank; whilst the opposite shore is lined by the alkali and vitriol works of Walker. A bend in the river brings us within sight of *Willington Quay*, where the Roman *Segedunum* stood formerly, and of *Wallsend*, at the eastern extremity of the Roman wall. *Howden Pans* comes next, with ship-yards and tar and varnish factories. Near it, at *Hayhole*, are the Northumberland Docks, and beyond these we reach *North Shields*, a great coal-shipping port, also largely engaged in ship-building, anchor forging, and the making of pottery. *Tynemouth* rises at the very mouth of the Tyne, and though enclosed with Shields within the same municipal

boundary, it is a separate town, aspiring to be called the "Brighton of the North." The promontory upon which it rises is crowned with an old castle, now converted into barracks, and the ruins of a priory, and affords a wide view of the sea.

Newcastle, on the northern bank of the Tyne, is supposed to be the modern representative of the Roman *Pons Ælii*, and remained a military town throughout the Middle Ages, of which fact the keep of its castle, built by Robert Shorthose, and portions of the city walls remind us. It was frequently besieged, and often changed hands between Scotch and English, according to the fortunes of war. The old town, around its Norman keep and the venerable church of St. Nicholas, whose spire is carried aloft by four flying buttresses, has retained narrow winding streets, but the new town on the hills has wide streets and many houses built of limestone or Scotch granite. At the head of its finest street rises a column surmounted by a statue of Earl Grey. The high-level bridge, which crosses the valley of the Tyne at a height of 110 feet, and is 1,327 feet in length, is the most stupendous monument of Newcastle. It is one of the great works of Robert Stephenson, whose colossal statue stands in front of the railway station. The Wood Memorial Hall contains the collections of the Literary and Philosophical Society and of the Institute of Mining and Mechanical Engineers, and the "keep" has been converted into a museum of Roman and British antiquities. But that which most strikes the visitor to the metropolis of coal is its machine factories, potteries, chemical works, and foundries, and the intense activity of its port. The Armstrong gun foundry at *Elswick* occupies nearly a whole suburb to the west of the town, and rivals in importance the great Government works at Woolwich. Though its resources have been little called upon by the military authorities of England, foreign Governments have freely availed themselves of them, and Elswick, between 1856 and 1876, has supplied to them over 4,000 pieces of ordnance of nearly every pattern now in use.

The spectacle presented by the river port below Newcastle is full of animation. On all sides we perceive long strings of vessels moored to the shore, beneath high scaffoldings, to the very extremity of which travel the railway trucks laden with coal, there to be tilted up, so that their contents may discharge themselves into the hold of the vessels lying below. In the course of four hours a steamer of 1,200 tons burden has taken in its full cargo of coal. Thirty-three hours afterwards it arrives at London, where ten hours are occupied in unloading it. Another thirty-four hours and the steamer is back at Newcastle, ready for another cargo. Thus in three days and six hours the whole of this commercial transaction is completed. The application of steam to machinery, and the great improvements of the mechanical arrangements for loading vessels which have been made since the middle of the century, have vastly benefited the coal merchants of Newcastle. A steamer with a crew of 21 men now carries as large a quantity of coal in the course of a year as was formerly done by 16 sailing colliers manned by 144 men.

In good seasons the ports of the Tyne export close upon 6,000,000 tons of coal, and their commerce, whilst much inferior to that of Liverpool or London, surpasses that of every continental port, including even Hamburg, Antwerp, and

Marseilles. Sometimes 300 colliers leave the Tyne on the same tide. But in order to develop this immense traffic, Newcastle has been compelled to expend large sums in improvements of every description. It maintains more than 250 tugs on the Tyne, as well as numerous pilot-boats off the mouth of the river. Formerly the mouth of the Tyne was obstructed by a bar, and up to 1849 vessels drawing over 6 feet of water were unable to enter. But dredges were set to work, and not only has a depth of 26 feet been secured at low water, but the scour of the river has swept away many sand-banks, and the strong tidal current which now ascends the river has revived the salmon fisheries, which the poisonous streams discharged by numerous factories had nearly killed. The mouth of no other river, not even excepting that of the Clyde, has been adapted with greater success to the requirements of navigation.

Ascending the river Tyne above Newcastle, we pass the village of *Wylam*, where George Stephenson was born, and reach *Hexham*, a quaint old town below the confluence of the South and North Tyne, with a fine old abbey church, a grammar school, and a little industry. The South Tyne, though rich in picturesque scenery, is poor in population. *Allendale*, in a side valley, has lead mines; *Haltwistle* is but a poor place; and *Alston*, with its productive lead mines, though geographically within the county, belongs politically to Cumberland (see p. 289).

Far more interesting is the small town of *Bellingham*, on the North Tyne. Its environs abound in square camps, and a few miles to the north of it was fought the battle of *Otterburn* (1388), supposed to be referred to in the famous ballad of "Chevy Chase."

Returning to Tynemouth and proceeding northward along the coast, we pass the fishing village of *Cullercoats*; *Hartley*, well known for its excellent coal; and *Blyth*, a watering-place no less than a coal-shipping port. *Cowpen*, near it, has collieries, as have also *Cramlington* and *Seghill*, situated a few miles inland, but *Bedlington* is the great mining centre of the district.

Morpeth is a quaint old town on the Wansbeck, with the remains of a castle. A little flannel is woven, and collieries are worked in its vicinity. These are nearly the last met with in the north of England, and the beautiful valley of the Coquet is wholly devoted to agriculture. *Rothbury*, its chief market town, is inferior in population to the busy hives in the manufacturing and mining districts, but yields to none in the beauty of its environs. Old camps abound in its vicinity, and about a mile to the west is a peel tower, one of many which formerly defended the Scottish borders.* *Warkworth*, a village at the mouth of the Coquet, is remarkable for the noble ruins of one of the strongholds of the Percys.

Alnwick, on the Aln, 4 miles above its mouth at the bathing village of Alnmouth, is a quaint old town under the modernised castle of the Duke of Northumberland. This castle contains valuable paintings and collections of various kinds, and the park which surrounds it forms one of the great attractions of the neighbourhood.

The coast of Northumberland, to the north of the Aln and as far as Budle Bay, is bounded by limestone cliffs, and at a few places by basalt. On one such

* Peel tower, derived from *pila*, a stake, pillar, statue.

mass of columnar basalt is perched the ancient castle of *Dunstanborough*, whose foundation dates probably back to a period anterior to that of the Romans. Another basaltic promontory is crowned with *Bamborough Castle*, which formerly defended a town of importance, now represented by a small fishing village. Off this castle lie the basaltic *Farn Islands*, where seals are met with, and which abound in sea-birds. The largest of these islands has an old chapel and a graveyard, associated with the name of St. Cuthbert; while one of the smallest, a mere

Fig. 147.—HOLY ISLAND.

From an Admiralty Chart. Scale 1 : 120,000.



patch of rock rising a few feet above the water, is occupied by the Longstone Rock Lighthouse, the home of Grace Darling.

A little farther north is *Holy Island*, famous in ecclesiastical history on account of its cathedral of Lindisfarne, the site of which is occupied by the ruins of a priory church, a miniature imitation of Durham Cathedral.

The river Till skirts the southern and eastern foot of the Cheviot Hills, and enters the Tweed about 12 miles above its mouth at Berwick-on-Tweed. *Wooler*, an old market town, is the principal place in the valley of the Till. *Humbleton*, or *Homildon Hill*, in its neighbourhood, is crowned with a circular

entrenchment, and rises in the centre of the field on which Percy, Earl of Northumberland, defeated a Scotch army in 1402. The more famous Field of Flodden, the scene of the crushing defeat and death of James IV., lies 8 miles to the north-west, not far from the Tweed. Chillingham Castle, often referred to in connection with its breed of wild cattle, is about 4 miles above Wooler, on the Till.

Berwick-on-Tweed, the old border fortress, lies at the mouth of the Tweed, and vessels of 500 tons burden can approach its quays. The old bastioned walls are still in good condition. A bridge and a stupendous railway viaduct, 2,160 feet in length, connect Berwick with its suburb *Tweedmouth*, on the southern bank of the river. *Spittal*, much frequented for its sea baths, adjoins the latter on the east. Berwick has iron foundries and machine factories, and exports the salmon caught in the Tweed, packed in ice. This is the northernmost town in England, of which it has formed part only since 1482, in which year it was finally wrested from the Scotch.





CHAPTER XII.

THE ISLE OF MAN.



THE Isle of Man lies about the centre of the Irish Sea, and within sight of the three constituent parts of the United Kingdom. It is a little nearer to Scotland than to England, but to judge by the formation of the sea-bottom, it forms a natural dependency of the county of Cumberland. The depth of the sea between Man and the English coast averages 100 feet, whilst in the direction of the Scotch county of Wigton it is at least 160 feet, and soundings of 420 feet are met with on voyaging towards the Irish port of Belfast. In order to determine whether the Isle of Man is a natural dependency of Ireland or Great Britain, Halley tells us* serpents and toads were carried thither. They survived, and hence it was concluded that Man is English, for these animals cannot live upon the soil of the Emerald Isle. The remains of the so-called elk, so numerous in Ireland, were first discovered on the Isle of Man.†

The geographical position of the island at nearly equal distances from three potent centres of attraction has frequently enabled the inhabitants to maintain their independence, notwithstanding that they were surrounded by enemies. On some occasions, however, they quickly changed masters, according to the oscillations of political power amongst their neighbours. During the early Middle Ages the inhabitants of Man were subjected to the influences of Ireland and Scotland. Subsequently the island fell under the sway of Danish pirates, and was incorporated into their "Kingdom of the Islands." When this kingdom was sold to the Scots in 1264, Man passed with it into their possession; but some time afterwards it was wrested from the Scotch, and made a separate "kingdom," dependent upon England. Thomas, Earl of Derby, relinquished the title of King of Man, and took that of Lord, and since 1784 the British Government has purchased all the sovereign rights and privileges appertaining to the island. Man, at the present time, is a dependency of the British crown, unrepresented in the Imperial Parliament. It is, in fact, a kind of colony, governed by an independent legislature,

* "Atlas Maritimus et Commercialis," 1728.

† George Canning, "Isle of Man."

called the Tynwald, and consisting of two branches—the Governor and Council, and the House of Keys. The inhabitants of the island may consequently claim to form a state within the state. They differ, moreover, from their neighbours on the larger islands in their traditions, their double origin, and partly also in language.

Fig. 148.—THE ISLE OF MAN.

Scale 1 : 150,000.



Manx holds a middle place between Irish and Scotch Gaelic, but inclines considerably to the latter; but it is spoken now only in some of the more remote districts, and altogether by hardly a fourth part of the population. All but a few of the oldest inhabitants understand English. Manx literature, in addition to religious books, includes a few ballads of the sixteenth century. The descent of the

inhabitants is not, however, purely Celtic, for there has been a strong intermixture of Scandinavian blood.*

A range of mountains of considerable elevation traverses the island from the south-west to the north-east, and a depression near its centre separates this range into two distinct masses. Standing upon the principal summit (2,004 feet), the whole of the Irish Sea, with the mountains that bound it, lies spread beneath us. This mountain still bears the Scandinavian name of *Snae Fell*, or Snow Mountain, although snow only covers it during part of the winter. Indeed, the climate of the Isle of Man is very temperate, though somewhat variable, and the number of tourists attracted by its scenery is very considerable. The larger part of the island is the property of yeomen, who cultivate their own small estates. The mountains yield lead, copper, iron, and zinc.

Castletown, the official capital of the island, is built on a crescent-shaped bay near its southern extremity. *Peel* is the principal port on the western, as *Ramsay* is on the north-eastern coast, but *Douglas* is the only town of real importance. It stands on a well-sheltered bay on the east coast, opposite Liverpool, and at one extremity of the "gap" which runs athwart the island, the other end being occupied by Peel. Gardens, villas, and terraces covered with flowers surround Douglas, and the roadstead is protected by a powerful breakwater. In the churchyard of Kirk Braddan, to the north-west of it, may still be seen a raised stone covered with dragons, carved in the twelfth century, and bearing a mortuary inscription in Runic letters which Münch of Copenhagen was the first to decipher. So-called Druidical monuments of every kind are plentiful throughout the island, but there is reason to believe that some of them, at all events, are not older than the Middle Ages. One of the most curious amongst them is the monument at Tynwald, at the intersection of four roads, in the centre of the island. We do not know whether its origin is Celtic or Scandinavian, but to the present day it is put to the use for which it appears to have been intended, for the local laws still continue to be promulgated here annually in the presence of the Governor, the two "Deemsters," or Judges, the Council, and the "Keys." According to tradition a head Druid or kind of Pope of the Celtic world, officiated in the Isle of Man before the Roman epoch, and the faithful then flocked to it from all parts to do him homage. Man and Anglesey had formerly the same name, and the mediæval lords of the island used the title of "King of both the Monas." The authority of the Bishop of Sodor and Man is now limited to the Isle of Man; the Sodor—*Sudr eygys*; that is, southern islands (when contrasted with the Orkneys)—or Hebrides, having been separated from his bishopric.

* H. Jenner, "The Manx Language," *Transactions of the Philological Society*, 1875.



CHAPTER XIII.

SOUTHERN SCOTLAND.

(WIGTOWN, AYR, KIRKCUDBRIGHT, DUMFRIES, ROXBURGH, SELKIRK, BERWICK, HADDINGTON, EDINBURGH, LINLITHGOW, PEBBLES, LANARK, RENFREW, BUTE, DUMBARTON, CLACKMANNAN, STIRLING, KINROSS, FIFE.)

GENERAL FEATURES.



SOUTHERN Scotland, by the nature of its soil no less than with respect to its inhabitants, forms a well-marked geographical province. The far-penetrating Solway Firth and the crest of the Cheviot Hills very distinctly mark its southern boundary towards England. But the line to the north of the Clyde and the Firth of Forth, which is supposed to separate the Scottish Lowlands from the Highlands, is altogether conventional and not so well defined. It passes through the mountain spurs which descend towards the level country; it separates men differing in race, and marks a climatic boundary. Southern Scotland, such as it has revealed itself in history, coincides pretty nearly with the tract of country enclosed within the two old Roman walls. This tract is very much inferior to the remainder of Scotland in area, but far surpasses it in industry and power, and contains two-thirds of its population.

The contrasts between England and Scotland are manifested even in the geological structure of the two countries. In Northern England the geological formations strike north and south, and the Pennine chain runs in the same direction; whilst in Scotland the geological formations, far more regular in their outlines, strike across the country from south-west to north-east, and from sea to sea. The strike is the same in the Cheviot Hills, no less than in the Carrick Hills, the Louthier Hills, the Moorfoot and Lammermuir Hills, to the south of the plain extending from the Forth to the Clyde, and in the Grampians and other ranges of Northern Scotland. But though the mountain chains in the two portions of Caledonia run in the same direction, the rocks which form them are different. The carboniferous formation, which lies across the isthmus, contrasts with the more ancient mountains in Northern Scotland, and through the mineral treasures

which it encloses, it has exercised a powerful influence upon the peopling of Southern Scotland.

But even long before the working of the coal mines had attracted a crowded population to the plain of the Clyde, the Lowlands, owing to their mild climate, the fruitfulness of their soil, and the facilities for opening up communications, had become the seat of towns. The veritable centre of historical Scotland must be looked for along the line which joins the banks of the Tay to those of the Forth, and the inhabitants of the lateral valleys and of secondary river basins gravitated towards the towns in this central plain. A cradle of civilisation, distinct from those of England, sprang up of necessity in this part of Great Britain. That island, being very elongated in proportion to its width, and moreover inhabited by different races not then fused into a single nationality, naturally became the seat of distinct political organizations, and political unity was established only after prolonged struggles. The boundary between Scotland and England changed frequently with the fortunes of war, until it was finally fixed at the Solway Firth, the Cheviot Hills, and the Tweed, and there it remained until, through a pacific arrangement, the two countries became one. Few wars have been more bloody than were those waged between Scots and English, and innumerable have been the occasions on which the borders were crossed with hostile intent. The Scotch Lowlanders, reinforced by Highland clans, frequently invaded Northern England, and on one occasion, in 1403, they advanced as far as Shrewsbury, in the valley of the Severn. The English, on their side, being more numerous, succeeded several times in conquering Scotland, and frequently laid waste the fertile fields of the isthmus. The natural advantages which that part of Scotland enjoyed in time of peace, its wealth acquired by the commerce carried on through its firths, and its fertile and well-cultivated soil naturally invited invaders from the south.

The Cheviot Hills, which form the central portion of the Anglo-Scotch frontier, are not very elevated; but as their summits, owing to the severe climate, remain covered with snow for several months during the year, they form a substantial obstacle, and communication between their two slopes is difficult.

The Louth Hills lie within a belt of Silurian rocks which extends obliquely across Southern Scotland from the shores of the Irish Sea to the German Ocean. Within this same belt, but farther towards the south-west, and in the midst of a desolate region of crags, gullies, and lakes, rises one of the most elevated hills of this district, the Merrick (2,764 feet). A rugged upland stretches north-eastward from the Louth Hills, and connects them with the Moorfoot (2,136 feet) and Lammermuir Hills (1,722 feet), the spurs of which extend to the seashore. A second range of hills, less elevated and formed of more recent rocks, runs parallel with the main range, and sinks down to the level country of the Clyde and Forth. In a remote geological epoch, whilst the old red sandstone and the carboniferous strata were being deposited in the sea which then covered Scotland, numerous active volcanoes rose above the surface of the water. These volcanoes account for

which terminates to the south of Edinburgh, is one of these groups of eruptive rocks.

The plain of the Forth and Clyde is traversed by a canal whose summit level lies at an elevation of only 157 feet, and at this spot the separation between the Lowlands and the mountain region of Northern Scotland is consequently well marked. But higher up, in Strathelyde, there exists another breach in the mountains, for the Clyde, which now flows to the westward, formerly pursued its course to the east, into the valley of the Tweed, and if measures were not taken to protect against erosion the gravel deposits of the plain of Biggar, to the south of Lanark, the Clyde would resume its ancient course.* The water-parting between the Clyde and the Forth was formerly less elevated, for raised beaches are met with at many places along the estuaries of the two rivers, at an elevation of between 20 and 40 feet above the sea-level, and they contain the shells of animals similar to those still living in the neighbouring seas. In the vicinity of Glasgow, where repeated opportunities for examining the soil are afforded by the construction of sewers, the bones of whales, seals, and porpoises have frequently been found at 20 or 30 feet above the actual level of the sea. At the time these cetaceans were stranded man already lived in the country, for close to their bones boats of various descriptions have been discovered, some of them mere dug-outs, such as are used by savages, but others skilfully constructed of planks, with pointed prows and square sterns. Mr. A. Geikie is of opinion that these boats belong to the historical epoch, and that the Roman conquerors of the country may have seen them afloat on the estuary of the Clyde. In the bog of Blair Drummond, near the Firth of Forth, a whale was unearthed, which had been harpooned by means of an instrument made of the antlers of a stag.† In the neighbourhood of Falkirk, near the western extremity of the Firth of Forth, the sea formerly extended up the river Carron, far beyond the present head of the tide. The great Roman wall, named after Antoninus, though begun by Agricola, extended from sea to sea, so as not to leave wide passages at either end open to an invader. Yet no remains of this wall have been found to the west of Dunglass, where it finishes at a height of 25 feet above the present level of the sea. In the east it terminates on the top of a cliff, at Carriden, near Falkirk.‡ In the interior of the country the remains of this wall may still be seen in a few places, and at the close of last century it was even possible to distinguish ten forts and bridge-heads which defended the principal river passages, and also portions of a ditch, 42 feet wide and 22 feet deep, which extended along its northern face. This region, formerly of such strategical importance, has, owing to its vicinity to two seas, its small elevation, and the riches of its soil and subsoil, become one of the most prosperous of Great Britain, and, indeed, of the whole world. Edinburgh and Glasgow are the two sentinels of this Scotch isthmus. It was the action of the glaciers which destroyed the

* A. Geikie, "Scenery and Geology of Scotland."

† Ramsay, "Physical Geology and Geography of Great Britain."

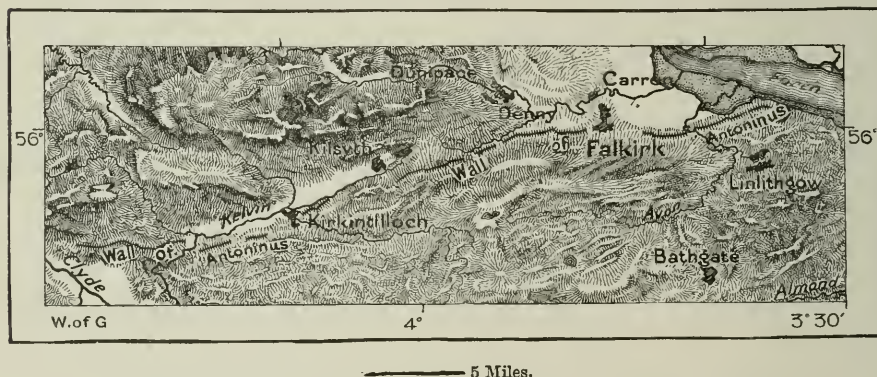
‡ Wilson, "Prehistoric Annals of Scotland;" Robert Chambers, "Ancient Sea Margins."

more solid rocks, and spread their mingled waste over the plain, thus creating the most fertile soil to be met with in all Britain.

Southern Scotland contrasts by its greater regularity of coast-line with the deeply indented shores of the north. In the east only one peninsula, bounded on the one side by the winding Firth of Forth, on the other by the Firth of Tay, advances beyond the line of coast. In the west the broad peninsular mass of Galloway projects towards Ireland, from which it is separated by a marine "pit" having a depth of nearly 1,000 feet. This peninsula terminates in the Rhinns of Galloway—anciently an island, but now joined by a low neck to the mainland. These are the only inequalities in the contour of the coast, and the contrast with the littoral region of the Western Highlands, where we feel almost lost in a labyrinth of "lochs," is a very striking one. These lochs, some of which communicate freely with the sea, whilst others are lakes drained by swift-flowing rivers and torrents, are first met with to the north of the Clyde, along

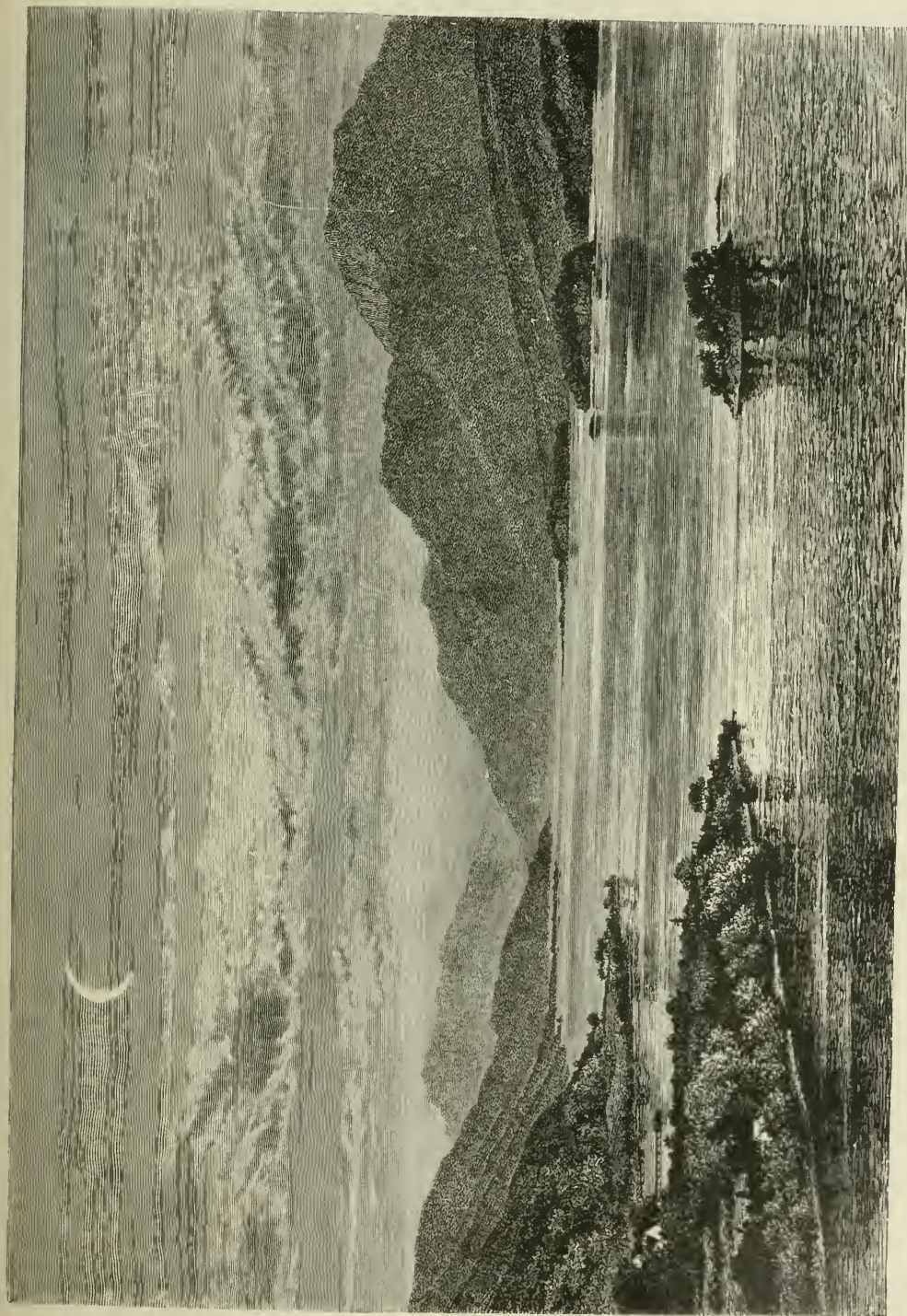
Fig. 150.—THE WALL OF ANTONINUS.

Scale 1 : 555,000.



the skirt of the Highlands. Loch Lomond is the most beautiful of all these lakes, and that amongst them which has most frequently formed the theme of poets. The river Leven drains it into the Clyde. A sinuous strait at its northern end, a veritable lake, several miles in width near its centre, but becoming shallower in proportion as it grows wider, Loch Lomond presents its admirers with every possible contrast of scenery—gently swelling hills and rugged crags; scarped islands raising their grey pinnacles abruptly above the translucent water, and groups of low islands covered with meadows and woods, and inhabited by bounding deer. Beautiful country residences are here and there seen along the shore, whilst near the northern extremity of the lake the long back of Ben Lomond (3,192 feet high), often enveloped in mist, rises above cultivated fields and forests.

The same mountain region gives birth to the river Forth, one of the principal affluents of which has the famous Loch Katrine, sung of in Sir Walter Scott's "Lady of the Lake," for its upper reservoir. Loch Katrine resembles the Lake



LOCH LOMOND AND BEN LOMOND, AS SEEN FROM INCHTAVANNAH.

of Lucerne in its precipitous rocks and abrupt turnings. But the guardian spirit of the lake has become the bondmaiden of human industry, for the city of Glasgow has taken possession of Loch Katrine, in order that it may supply its inhabitants and factories with pure water. An aqueduct, 44 miles in length, of

Fig. 151.—LOCH LOMOND.

Scale 1 : 350,000.



which 12 miles are tunnelled, pours every second 380 gallons of water into the reservoirs of the town. Manchester, in looking to one of the lakes of Cumberland for its supply of water, is only following the example set by this great city of Scotland.

Almost without lochs, the Lowlands are poor, likewise, in islands, and the larger

ones form in more than one respect a portion of the Highlands. The island of Arran, between the Firth of Clyde and Kilbrannan Sound, rises into lofty mountains in its northern part, and its most elevated peak, Gaodhbhein (2,866 feet)—that is, the “Windy Mountain,” corrupted into Goat Fell by the men

Fig. 152.—THE ISLAND OF ARRAN.

Scale 1 : 325,000.



of Saxon speech—attains a greater height than any other mountain in the south of Scotland. Arran, by its relief and wild aspect, forms part of the Highland region, but its geological structure attaches it to the Lowlands; for although its northern portion is composed of metamorphosed Silurian rocks pierced by granite, its southern and lower half resembles the neighbouring Lowlands in its

geological features. To this position on the borders of two geological domains Arran is indebted for the great variety of its sedimentary and eruptive rocks, and for a corresponding variety of scenery. Lamlash Bay, sheltered by Holy Island, and surrounded by heights crowned with sepulchral pillars and other monuments, affords one of the safest anchorages on the Firth of Clyde, and seventy or eighty vessels frequently wait here for days and weeks for a favourable wind. The Isle of Bute, which penetrates far into the district of Gowan, from which it is separated by the Kyles of Bute, a narrow arm of the sea, is remarkable for its fine scenery.

In addition to these two large islands and to several smaller ones which are contiguous to them, there are several islets of volcanic origin in the neighbourhood of the coast. One of these is Ailsa Craig (1,103 feet), a huge block of basalt, at the mouth of the Firth of Clyde. Its rows of grey columnar basalt separated by verdant terraces present a picture of singular beauty. The ruins of a tower crown its summit. Another of these islets is the Bass Rock (350 feet), at the entrance of the Firth of Forth, and about 2 miles from the shore, with a castle on its summit, formerly used as a state prison, and accessible only by means of ladders and ropes. This conical rock, when seen from a distance, almost looks as if it were overspread with snow, so densely is it covered with sea-fowl of every description. The solan goose only breeds on a few rocky islets around the coast of Britain, and amongst these the Bass Rock is the most famous, the scientific name of the bird—*Sula Bassana*—being derived from it.*

INHABITANTS.

THE Scottish Lowlanders are a very mixed race, and even their name is a singular proof of it. Scotland was originally known as Hibernia, or Igbernia, whilst the name of Scotia, from the end of the third to the beginning of the eleventh century, was exclusively applied to modern Ireland. The two countries have consequently exchanged names. Irish Scots, or Dalriads, having established themselves, about the middle of the third century, in Argyllshire, their neighbours became by degrees known under the same designation, and in course of time all the "Caledonians" were turned into "Scots."†

It does not appear as if the aboriginal Picts or Caledonians, who lived in the country at the time of its conquest, formed a strong element of the actual population of the Scotch Lowlands. It is believed that their inhabitants are for the most part of British and Anglo-Saxon race. The line which separated the English from the Picts runs, no doubt, across the isthmus of the Clyde and Forth: the ancient wall of Antoninus would thus have marked an ethnological frontier no less than a political one. But Saxons, Angles, and Britons were compelled to share their territory with emigrants of various races, including the Scots of Ireland, Frisians, Northmen, and Danes. At some places, and more especially

* Hugh Miller, "The Bass Rock: its Civil and Ecclesiastical History."

† Kemble, "Saxons in England;" Latham, "Ethnology of the British Islands;" Murray, in *Philological Society's Transactions*, 1873.

along the coast, people of different origin live in close contact with each other, and yet remain separate. Their blood has not mingled; habits, customs, and modes of thought and action have remained distinct. Along the whole of the coast, on that of the German Ocean no less than on that of the Irish Sea, we meet with colonies of fishermen, some of whom claim descent from the Northmen, whilst others look upon the Danes as their ancestors. There are even colonies which tradition derives from Flanders. Several of the maritime villages consist of two portions, like the towns on the coasts of Catalonia, Liguria, and Sicily, the upper part being inhabited by Saxon artisans and agriculturists, whilst the lower part forms the "Marina" of Scandinavian fishermen. These various elements of the population have, however, become fused in the greater part of the country. Physically the Scotchman resembles the Norwegian, and this is not solely due to a similarity of climate, but also to the numerous unions between Scandinavian invaders and the daughters of the country. The languages of the two countries also possess more features in common than was formerly believed. The Scotch speak English with a peculiar accent, which at once betrays their origin. Their intonation differs from that of the English, and they suppress certain consonants in the middle and at the end of words. They still employ certain old English terms, no longer made use of to the south of the Tweed, and, on the strength of this, patriotic Scotchmen claim to speak English with greater purity than their southern neighbours. Amongst the many words of foreign derivation in common use, there are several French ones, not only such as were introduced by the Normans, but also others belonging to the time when the two peoples were faithful allies, and supplied each other with soldiers.

The Scotch Lowlander is, as a rule, of fair height, long-legged, strongly built, and without any tendency to the obesity so common amongst his kinsmen of England. His eye is ordinarily brighter than that of the Englishman, and his features more regular; but his cheeks are more prominent, and the leanness of the face helps much to accentuate these features. Comparative inquiries instituted by Forbes prove that physical development is somewhat slower amongst Scotchmen than amongst Englishmen; the former comes up to the latter in height and strength only at the age of nineteen, but in his ripe age he surpasses him to the extent of about 5 per cent. in muscular strength.* Of all the men of Great Britain those of South-western Scotland are distinguished for their tall stature. The men of Galloway average 5 feet 7 inches in height, which is superior to the stature attained in any other district of the British Islands. The Lowlander is intelligent, of remarkable sagacity in business, and persevering when once he has determined upon accomplishing a task; but his prudence degenerates into distrust, his thrift into avarice. There is not a village without one or more banks. When abroad he seeks out his fellow-countrymen, derives a pleasure from being useful to them, and helps their success in life to the best of his ability.

The achievements of Scotch agriculturists, who are so little favoured by climate, must appear marvellous to the peasants of Italy and of many parts of France.

* Forbes; Hugh Miller, "First Impressions of England and the English."

Under the fifty-sixth degree of latitude they secure crops far more abundant than those obtained from the fertile lands on the Mediterranean, which are 900 miles nearer to the equator. Human labour and ingenuity have succeeded in acclimatizing plants which hardly appeared to be suited to the soil and climate of Scotland. About the middle of the eighteenth century a patch of wheat was pointed out near Edinburgh as a curiosity, whilst now that cereal grows in abundance as far north as the Moray Firth. And yet it appears as if the climate had become colder, for it is no longer possible to cultivate the poppy or tobacco, as was done in the beginning of the century. Several varieties of apples, pears, and prunes, formerly in high repute, no longer arrive at maturity, and the Horticultural Societies have ceased offering prizes for these productions, because it is no longer possible to grow them in the open air. The manufacturing triumphs of Scotland have been quite equal to those achieved in agriculture, and it is on Scottish soil that Glasgow, the foremost manufacturing town of the United Kingdom, has arisen, with a population greater than that of either Manchester, Leeds, or Birmingham. Scotland, through her numerous emigrants who live in London and the other great towns, has also largely contributed towards the prosperity of England. The hawkers in the English manufacturing districts are usually known as "Scotchmen." The Scotch colonists in New Zealand and Canada are amongst the most active and industrious, and the young Lowlanders who go out to India as Government officials are far more numerous in proportion than those from England.

The love of education for its own sake, and not merely as a means to an end, is far more widely spread in Scotland than in England. The lectures at the universities are attended with a zeal which the students of Oxford or Cambridge seldom exhibit. It is by no means rare to meet pupils in elementary schools who are passionately fond of study, and the humble homes of artisans and labourers frequently contain a select library which would do credit to a wealthy English tradesman. At the same time there are not wanting young men who accelerate their studies in order that they may secure the certificates which form their passport to lucrative employment. They work hard, no doubt, but they strive not after knowledge, but for material gain. The students of Edinburgh have little time to devote to those exercises of strength and skill which are so highly cultivated at Oxford and Cambridge.* By a curious contrast, these Scotchmen, so practical and full of common sense, have an extraordinary love for the supernatural. They delight in stories of terror and of ghosts. Though clever architects of their own fortunes, they are yet fatalists, and the religious sects of which most of them are members defend with singular fervour the doctrine of predestination. Thousands amongst the peasants, dressed in clerical black, are veritable theologians, and know how to discuss the articles of their faith with a great luxury of Scripture texts. As Emerson says, they allow their dialectics to carry them to the extremes of insanity. In no other country of the world is the Sabbath observed with such rigour as in Scotland. On that day

* Demogeot et Montucci, "De l'Enseignement supérieur en Angleterre et en Écosse."

TOPOGRAPHY.

DUMFRIES is formed of the dales of the Nith, Annan, and Esk, which fall into the upper portion of Solway Firth, and is shut in by high naked hills on the land side, which afford excellent pasturage. Tracts of marshy ground occur near the shores of the Solway Firth, including the Solway and the Locher Mosses, but these have been drained and brought under cultivation.

The first village we arrive at, on crossing the boundary river Esk, is *Gretna Green*, famed for its irregular Scotch marriages. *Langholm*, with a monument to Sir John Malcolm, is the principal village of Eskdale. *Annan*, a small seaport, lies at the mouth of charming Annandale. It carries on a modest coasting trade and a little cotton-spinning. Ascending the dale, we pass *Lockerbie*, noted for its sheep fair, and finally reach the picturesque village of *Moffat*, lying at the foot of Hart Fell (2,651 feet), and no less noted for its wild surroundings than for its sulphurous waters. Crossing from Annandale into Nithsdale, we pass the village of *Lochmalen*, on the side of a small lake, and the remains of one of the castles of Robert the Bruce—according to some, his birthplace.

Dumfries, 8 miles above the mouth of the Nith, but accessible with the tide to vessels of 150 tons burden, is the most important town of South-western Scotland, and one of its most ancient; it engages in the woollen and hosiery trades. Robert Burns died here, and a monument has been erected over his grave in the old churchyard of St. Michael's. Below the town are the ruins of Caerlaverock Castle, at one time a place of great strength, and on the other side of the river, at the foot of the Criffel (1,867 feet), the beautiful remains of New or Sweetheart Abbey. Nithsdale is noted for its picturesque scenery. Most striking amongst its mansions is Drumlanrig Castle, a seat of the Duke of Buccleuch. Quite at the head of the dale, amidst the Louthers Hills, are the lead mines of *Wanlockhead*.

KIRKCUDBRIGHT, formed out of the eastern portion of the old district of Galloway, lies between the rivers Nith and Cree, and is traversed in its centre by the Dee, of which the Ken is a tributary, and by the much smaller Urr Water. Wild moorlands occupy nearly the whole of it, and its population is considerable.

Kirkcudbright, the county town, on the estuary of the Dee, is merely a village, with a small coasting trade. At Dundrennan Castle, 6 miles to the south-east, Queen Mary spent the night after the fatal defeat of her troops at Langside. *Castle Douglas* is a neat town in the valley of the Dee. Higher up the Dee expands into two lakes, Lochs Dee and Ken, at the head of which is *New Galloway*. *Gatehouse of Fleet* and *Creetown*, the latter with granite quarries, are small ports on Wigtown Bay, to the west of the Dee; whilst *Dalbeattie*, with its granite quarries, and *Kirkpatrick-Durham* are the most notable villages on Urr Water.

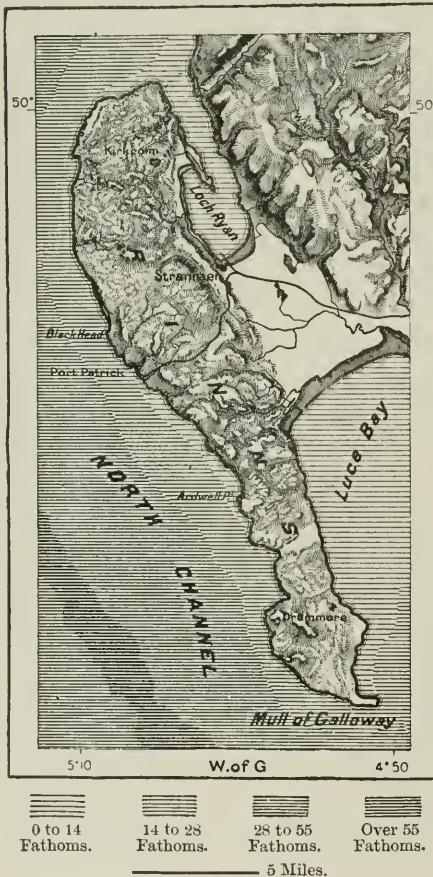
WIGTOWN consists of a mainland portion, filled with moorland hills, and of the peninsula, known as the Rhinns of Galloway, which is attached to it by a low neck of land. The population is sparse and decreasing. *Wigtown*, the capital, on Wigtown Bay, is a mere village, with a distillery and a small coasting trade. Far more important, though by no means prosperous, is *Stranraer*, at the head of Loch Ryan. On the peninsula itself, and within 21 miles of the Irish coast, is *Port Patrick*, with an extensive harbour, constructed at vast expense, but little

frequented. The only other villages deserving mention are *Glenluce*, on Luce Bay; *Garlieston*, on Wigtown Bay, with the principal seat of the Earl of Galloway; and *Whithorn*, farther to the south, with the ruins of a cathedral founded by St. Ninian, the apostle of the Picts.

AYRSHIRE borders upon the Firth of Clyde, into which flow the Garnock, Irvine, Ayr, Doon, and other rivers rising on the enclosing hill ranges. The county consists of three well-defined districts. Carrick, in the south, is a wild and desolate moorland region stretching up to Mount Merrick (2,764 feet); Kyle, in the centre, drained by Ayr Water, lies within a productive coal basin; and Cunningham, in the north, is a region of hills, extending to the crest of the upland which separates the county from Renfrewshire. Whilst Carrick supports but a small population, the northern part of the county, with its collieries and iron works, its textile factories and engineering shops, is one of the most densely peopled parts of Scotland.

Girvan, on a fine bay near the mouth of Girvan Water, is the principal port of Carrick. On the bold coast between it and the mouth of the Doon stand the ruins of Turnberry and Dunure Castles, and the magnificent mansion of Colzean. The Doon rises in a lake of the same name, on issuing from which it flows through the iron and coal mining district of *Dalmellington*. *Maybole*, a small country town, lies in a side valley, and the river enters the sea below the village of *Kirk Alloway*, the birthplace of Robert Burns. *Ayr*, the capital of the county, lies only a few miles farther north, at the mouth of Ayr Water, whose harbour is accessible to small vessels. It is a handsome town, with numerous villas, and its river

Fig. 154.—THE RHINNS OF GALLOWAY.
Scale 1 : 100,000.



is spanned by "two brigs." The whole of this region will for ever be associated with the memory of Burns. At *Tarbolton*, a few miles up the Ayr, the poet established his Bachelors' Club in 1780, and wooed his "Highland Mary," in service as a dairymaid at a neighbouring mansion. Still ascending the Ayr, we pass *Catrine*, a manufacturing village, and reach *Mauchline* and *Muirkirk*, where there are collieries, iron works, and limestone quarries. *Lugar* and *Cumnock*, both on the Lugar, a tributary of the Ayr, are engaged in the same industries.

Troon, about half-way between Ayr and Irvine, has a well-sheltered harbour, and is the busiest port of Ayr, shipping large quantities of coal. The river Irvine traverses the principal manufacturing district of the county, whose natural outlet is *Irvine*, near the mouth of the river. *Kilmarnock*, the largest town of the county, manufactures carpets, shawls, cottons, worsted, Scotch bonnets, machinery, and boots. The manufacturing villages of *Hurlford*, *Galston*, *Newmilns*, and *Darvel*, on the Upper Irvine, and *Stewarton*, to the north, are its dependencies. *Kilwinning* with *Stevenston*, *Dalry*, *Kilbirnie*, and *Beith*, in the valley of the Garnock, are towns of collieries and iron works. Three seaside towns on the northern coast of Ayrshire remain to be noticed. They are *Saltecoats*, with salt and magnesia works; *Ardrossan*, with iron works and collieries; and *Largs*, much frequented as a watering-place.

The shire of BUTE includes the islands of Bute, Arran, and Great and Little Cumbrae, in the Firth of Clyde. By geological structure these islands belong as much to the Highlands as to the Lowlands, and nearly 40 per cent. of the inhabitants are still able to converse in Gaelic, although hardly any are ignorant of English. *Rothsay*, the county town, is in Bute, as are also the villages of *Millport* and *Kamesburgh* (*Port Bannatyne*); whilst *Lamlash* is the principal village in Arran, with a harbour not to be surpassed on the Clyde.

LANARKSHIRE lies almost wholly within the basin of the Clyde, which, though inferior to the Tay and Tweed, has gathered within the area it drains nearly a third of the total population of Scotland. The river rises far to the south, its head-streams being fed by the rain which descends upon Hart Fell (2,651 feet), Queensberry Hill (2,285 feet), and the Louthers Hills (2,403 feet). In its upper course it traverses a region of sterile moorlands, within which lies *Leadhills*. Near *Biggar*, on a stream which finds its way into the Tweed, the Clyde sweeps abruptly round to the north-westward, and on approaching *Lanark* it leaps down a succession of *lincs* into the great agricultural and mining region of the county. The beautiful country around Lanark is one of the most famous in the history of Scotland, for it was here that the Scottish hero, Wallace, commenced his career. Here, too, at the neighbouring village of *New Lanark*, was founded the cotton-mill in which Robert Owen worked out his plans for the social regeneration of mankind. Between Lanark and Glasgow the river traverses the principal mineral region of Scotland. Its "black band" ironstone, containing coaly matter sufficient to calcine the adjacent ore without any addition of artificial fuel, has been a source of wealth to Scotch iron-masters, and enabled them to construct the sumptuous

mansions dotted over the country. These products have caused the villages of this district to expand into populous towns, but it is only fair to observe that hardly one amongst them possesses other sources of attraction than collieries and iron works. Foremost amongst the towns to the east of the Clyde are *Carlisle*, *Wishaw* with *Cambusnethan*, *Motherwell*, *Holytown*, *Bellshill*, and *Calderbank*, in the valley of the Calder; *Airdrie*, *Coatbridge*, *Gartsherrie*, *Rosehall*, and *Tolleross*, in the northern part of the county. Far more inviting than either of these is *Hamilton*, at the confluence of the Avon with the Clyde, with the sumptuous palace of its duke abounding in costly works of art, and its noble chase, in which a remnant of the breed of Scottish wild cattle still browse. The staple trades of Hamilton are hand-loom weaving and tambouring; but *Larkhall*, *Motherwell*, and other coal and iron mining villages are in its neighbourhood, and at night the horizon is illumined with the fires of numerous smelting works. The Avon flows past *Strathavon* and *Stonehouse*, and near it is the famous Drumclog, where the Covenanters beat Claverhouse in 1679, only to meet a disastrous defeat soon afterwards at Bothwell Bridge, 2 miles below Hamilton, and near the picturesque ruins of Bothwell Castle. In its onward course the Clyde flows past the manufacturing villages of *Cambuslang* and *Rutherglen*, whose swelling heights are crowned with the villas of the wealthy merchants and manufacturers of *Glasgow*.

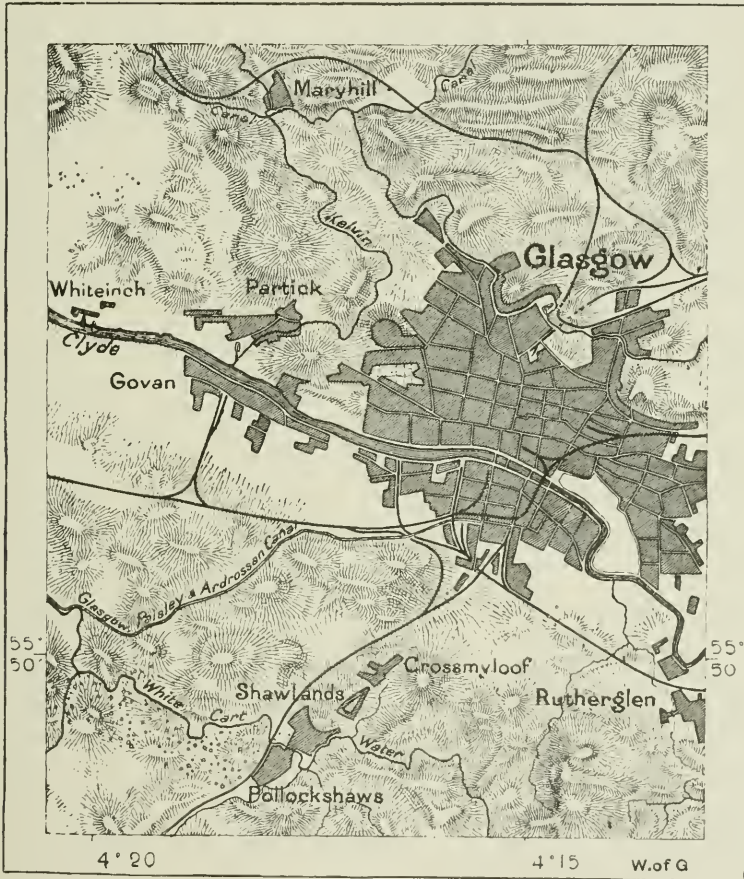
This town, though more populous than any other in Scotland, and ranking immediately after London, is not even the capital of a county. Glasgow, as early as the fifteenth century, had 14,000 inhabitants, but its distance from the sea and the small depth of the Clyde stunted its growth. At the time of the union the port of the Clyde, now so prodigiously busy, had hardly any commerce with foreign countries. Its position on the western coast precluded it from competing with the towns of England in their traffic with continental Europe, and the English colonies were at that time closed against her merchants. But no sooner had the Act of Union placed Glasgow and Greenock on the footing of English ports than they endeavoured to secure their share in the commerce with America. They imported more especially the tobacco of Virginia and Maryland, and when they lost their monopoly in this branch of commerce, other industries had been created, and Glasgow increased rapidly in population. In 1801 it had already 80,000 inhabitants, and the increase since then has been enormous. Unfortunately this increase is entirely due to immigration, and not to an excess of births; for though Glasgow rejoices in the possession of magnificent parks, its death rate exceeds that of Bombay and Calcutta. The crowds of half-famished immigrants are so great, and the dens they inhabit are so unwholesome, that death reaps a more abundant harvest here than in most of the other great cities of the world. Irishmen without work, and numerous immigrants from the Highlands, furnish fresh food to succeeding epidemics, and the narrow *wynds* are the permanent abodes of consumption and fever. Yet between 1866 and 1876 more than 31,000 persons were driven from the most crowded parts of the city in consequence of the opening of new thoroughfares.

The 150,000 houses of the town extend along both banks of the Clyde, but

the principal quarters and nearly all the public buildings are to the north of the river. The cathedral, with its beautiful Gothic crypt, is, with the exception of a church in the Orkneys, the only Catholic place of worship in Scotland which escaped destruction at the time of the Reformation. The order to wreck it had been given; but the citizens, proud of their old church, resisted the iconoclastic zeal of the Calvinistic ministers. In the necropolis at the

Fig. 155.—GLASGOW.

Scale 1 : 70,000.



back of the cathedral has been placed a conspicuous column in memory of John Knox. This venerable pile now stands near the eastern verge of the city, which has not grown up around it, but spread to the westward, in the direction of the sea.

The old university, founded in the fifteenth century, has recently been transferred from its ancient site in the east of the city to the neighbourhood of the West-end Park, and its showy buildings occupy a magnificent position

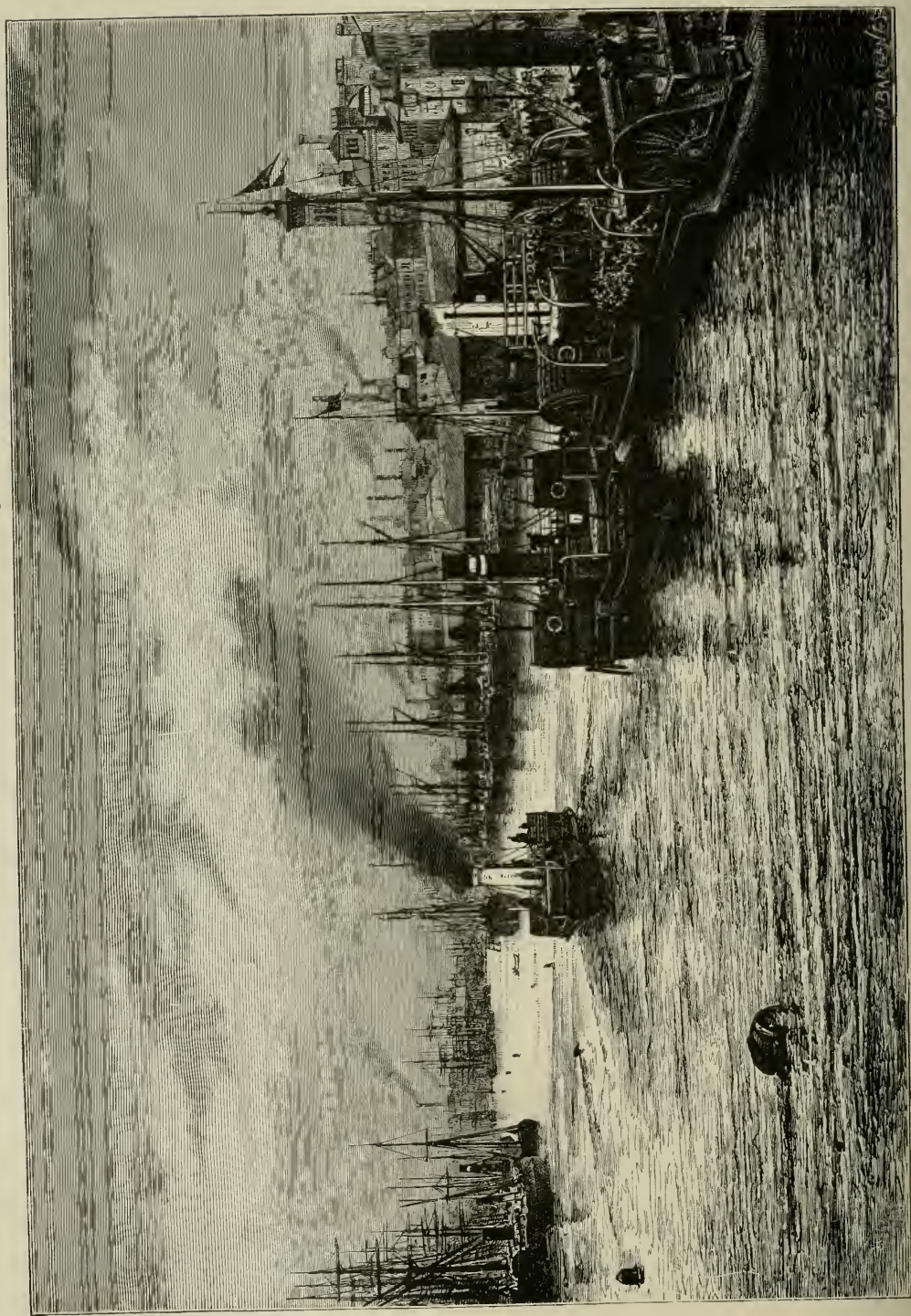
on the top of Gilmore Hill. Amongst its many collections that bequeathed by Dr. Hunter, the famous surgeon, is the most valuable. Hardly inferior in its museums and chemical laboratories is the so-called Andersonian University, which is at once a mechanics' institution and a school of science, whose evening classes are attended by thousands of students. By a curious clause in his will, the founder of this noble institution determined that it should be governed by nine times nine curators, of whom nine must be Andersons. George Square, with statues of Sir Walter Scott and other Scotch worthies, is the principal open space of the city, whilst Argyle Street, with its eastern continuation, Trongate, is the chief street.

Glasgow is, above all, an industrial city, and of its buildings none attain a higher elevation than the chimneys of some of the great chemical works, which have not their equal in the world. Its industry is remarkable for its variety. The Scotch town spins cotton like Manchester, weaves silk like Macclesfield, makes cloth like Leeds and Halifax, manufactures jute like Dundee, builds ships like Middlesbrough, and has metal works, glass houses, and potteries like Birmingham, Newcastle, and Worcester. And in all these branches of manufacture it holds a foremost place. Far above 100,000 operatives find employment in its three or four thousand factories.

The commerce of Glasgow is in proportion to its industry. The six lines of railway which converge upon it place it in communication with every part of the kingdom. As to its harbour, it includes the whole of the Lower Clyde, from the Glasgow Bridge, above the Broomielaw, to Greenock, a distance of 20 miles. The Clyde at Glasgow is scarcely 400 feet wide, and we marvel at the enterprise which converted a river of such small volume into one of the great ports of the world. Formerly, before the Clyde had been confined within embankments, it spread with each tide over the adjoining marshes, and at low water was obstructed by sand-banks, which rendered its navigation impossible to all but barges. At that time oxen were driven across it from Dumbarton into Renfrewshire, and sea-going vessels were obliged to discharge their cargoes 18 miles below Glasgow. In 1653 the merchants of Glasgow, despairing of ever being able to convert the Clyde into a navigable river, determined to establish their port at Dumbarton; but the citizens of that old town declined the offer, for fear that the bustle of commerce and industry might interfere with their traditional customs.* Glasgow thus seemed to be condemned to remain an inland city, but it determined at least to have an outport of its own, and with that view, in 1662, excavated docks, and erected the warehouses at Port Glasgow, on the southern bank of the Clyde.

At the same time the works for deepening the Clyde were continued, and in 1718 the first vessel of 60 tons burden left Glasgow for North America. Greenock, more favourably situated, likewise traded with America, and during the whole of the eighteenth century it was a question which of the two towns would prevail in the end. But owing to the labours of Smeaton, Watt, and

* Geo. Dodd, "The Land we Live In;" Ch. Dupin, "Voyage dans la Grande Bretagne."



THE PORT OF GLASGOW.

other engineers the city more distant from the sea gained the victory, and became the great emporium of the Clyde. By 1875 the Lower Clyde had been completely embanked, and its depth at low water was nowhere less than 8 feet. Since that time the persevering work of powerful dredging machines has almost trebled the depth, and vessels of 1,000 tons can at all times lie at the side of the quays of Broomielaw. The Clyde was the first river regularly navigated by steam-vessels. This happened in 1812, and six years later a line of steamers had been established between Greenock and Ireland. At the present time Glasgow communicates with every part of the world, and the Clyde ports only yield in activity to those of the Thames, the Mersey, and the Tyne. It has been noticed that gulls have become more numerous in the valley of the Clyde since Glasgow has grown into a great maritime port, and it is evident that these birds follow in the wake of vessels.

Govan and *Partick*, on the Clyde, below Glasgow, have ship-yards and print works. *Maryhill*, to the north-west, is a small manufacturing town.

RENFREWSHIRE occupies the low-lying land on the southern bank of the Clyde below Glasgow, and extends upwards from the river bank to the crest of a ridge formed of igneous rock, which separates it from Ayrshire, and attains a height of 1,700 feet. The country possesses iron and coal, and its dense population is engaged in building iron ships and machinery, cotton-spinning and other textile industries, iron-founding, and sugar refining.

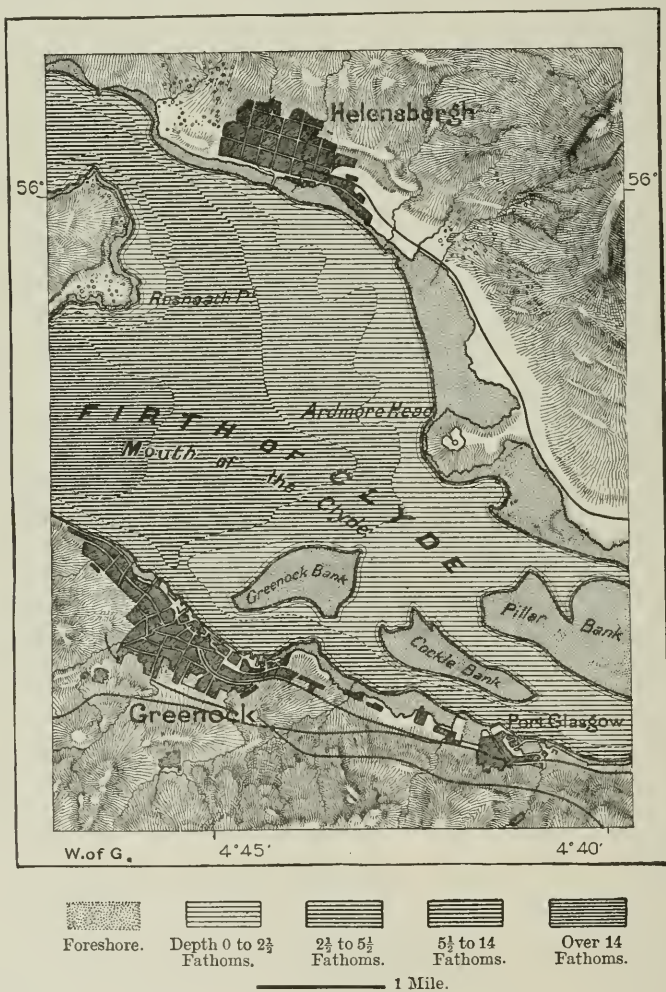
Renfrew, the county town, on the Cart, not far from its mouth into the Clyde, is now a place of little note, having been long since outstripped by its neighbour *Paisley*, 2 miles above, which manufactures cotton, woollens, tartans, thread, shawls, and machinery. Still higher up in the valley of the Cart, which for a considerable portion of its course runs parallel with the Clyde, are the smaller manufacturing towns of *Pollockshaws*, *Thorntliebank*, *Busby*, and *Eaglesham*. *Barrhead* and *Neilston*, on Leven Water, a tributary of the Cart, are engaged in the cotton and linen trades. The alum works of *Hurlet* are near the former, and both have collieries and iron mines. *Johnstone* and *Kilbarchan*, on the Black Cart, are dependencies of Paisley, with collieries in their neighbourhood.

Port Glasgow was founded by the merchants of Glasgow, but since the deepening of the river has much declined in importance, though still a bustling port, with ship-yards and other manufactures. *Greenock*, its neighbour, though only provided with a harbour in the beginning of the eighteenth century, has become one of the great towns of Scotland, where the construction of iron steam-vessels is carried on to a great extent, besides which there are sugar refineries, foundries, potteries, and jute and worsted factories. James Watt, the improver of the steam-engine, was born at Greenock, and a marble statue has been raised to his memory. *Gourock*, beautifully situated at the mouth of the Clyde (which is defended by Fort Matilda), is much frequented as a watering-place.

DUMBARTONSHIRE includes a lowland tract along the north bank of the Clyde, and a Highland region shut in between Loch Long and Loch Lomond, which rises in Ben Vorlich, near the head of the lake, to a height of 3,091 feet. Descending the Clyde below Glasgow, we pass Dunglass Point, where the Roman wall terminated, and which is surmounted by the ruins of a castle, and an obelisk erected in memory of Henry Bell, the introducer of steam navigation. A few

Fig. 156.—GREENOCK AND HELENSBURGH.

Scale 1 : 100,000.



miles below, at the mouth of the Leven, is the two-peaked basaltic rock of the famous city of *Dumbarton*, the ancient capital of the kingdom of Strathclyde. Dumbarton, owing to its commanding position, has ever played an important part in military history. The Cumbrians called it Al-Cluyd, whilst the Scotch gave it the name of Dun-Breton, and that name, slightly modified, it has retained to the present day. It is the Balclutha of Ossian's poems. The castle which crowns the

rock encloses remains of mediæval structures, and even a few bits of Roman masonry. In accordance with the treaty of union between England and Scotland, this ancient residence of Robert the Bruce, Mary Stuart, Charles I., and Cromwell is to be maintained for ever as a place of defence. Dumbarton engages extensively in the construction of iron ships, besides which it is a great resort of tourists bent upon a visit to the beautiful scenery of Loch Lomond. The Leven, which drains that lake, flows past *Balloch*, *Alexandria*, *Bonhill*, and *Renton*, all of which engage in cotton bleaching and dyeing, or have print works. *Luss*, a village on the western shore of Loch Lomond, has slate quarries, and the fishing village of *Arrochar*, farther north, marks the present southern limit of Gaelic.

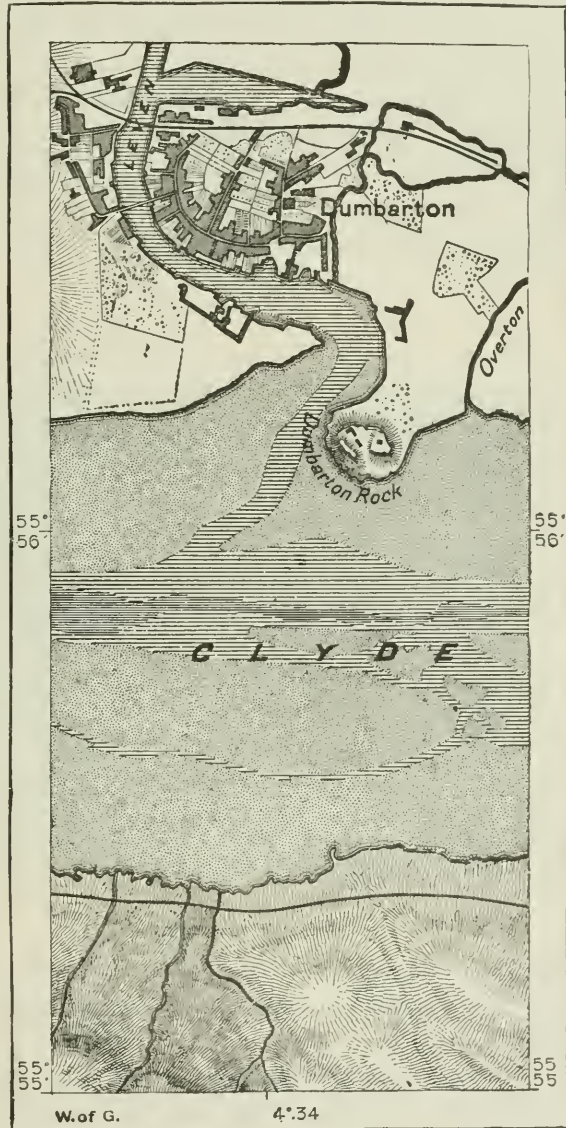
Cardross, below Dumbarton, is noteworthy as the place where Robert Bruce died. Almost immediately afterwards we reach *Helensburgh*, a flourishing watering-place near the mouth of Gare Loch, only founded in 1777, opposite to which rises the wooded eminence of *Roseneath*, with a mansion of the Duke of Argyll.

Kirkintilloch is the principal place in a detached portion of the county, which adjoins Lanarkshire in the north. Collieries are in its neighbourhood.

The basin of the Tweed, though far more extensive than that of the Clyde, and not without tracts of fertile land, is nevertheless but sparsely peopled; most of its towns are mere villages, and only two amongst them have over 10,000 inhabitants.

Fig. 157.—DUMBARTON.

Scale 1 : 25,000.



Depth under
2 Fathoms

Over 2
Fathoms.

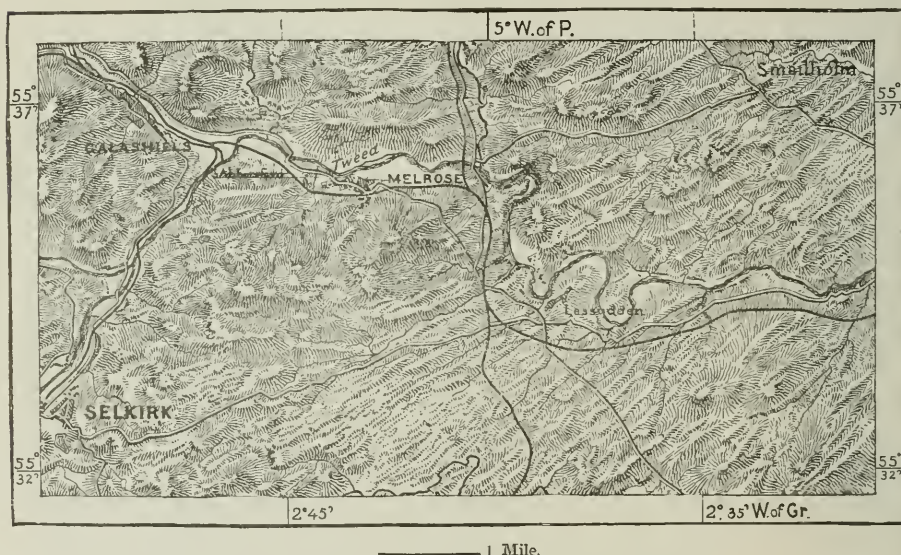
Half a Mile.

PEEBLES, which occupies the upper basin of the Tweed, its boundaries coinciding nearly with those of the ancient district of Tweeddale, is for the most part a wild pastoral region, sloping northward from the Hart Fell, but communicating on the west, through the curious breach of Biggar, with the valley of the Clyde. *Peebles*, the county town, is but a small place with some woollen trade. *Innerleithen*, a village at the confluence of Leithen Water with the Tweed, has mineral springs.

SELKIRK is traversed by the Tweed in the north, whilst the bulk of the shire lies within Ettrickdale and Yarrowdale—the one drained by a “water” thrown off from Ettrick Pen (2,269 feet), the other by a stream descending from St. Mary’s Loch. *Selkirk*, the county town, has been famous for centuries for the manufacture of single-soled shoes, and woollen-mills have lately been erected

Fig. 158.—GALASHIELS AND MELROSE.

Scale 1 : 238,000.



along the banks of the Ettrick. In the neighbouring dale of the Yarrow are the ruins of “Newark’s stately tower,” and the farm of Foulshiels, where Mungo Park was born.

Galashiels, near the confluence of the Gala with the Tweed, and on the borders of Roxburghshire, is, with Hawick, the great manufacturing town of the valley of the Tweed, and one of the principal seats of the woollen and hosiery trades, being known more especially for its tartans and “tweeds.”

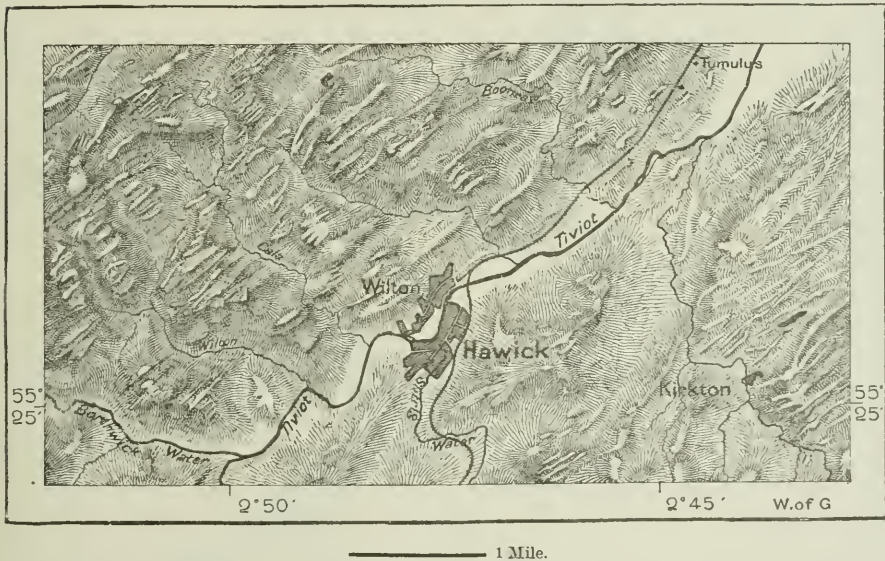
ROXBURGH extends southward from the Tweed to the Cheviot Hills, which separate it from Northumberland, and reaches in the south-west beyond the uplands connecting the Cheviots with the more central hills of the Lowlands into the valley of the Liddel, which is tributary to the Tees, and through it to the Solway Firth. The south-western part of the county forms the district of Liddisdale, whilst the main portion, sinking down towards the Tweed,

is known as Teviotdale. *Rosburgh*, which derives its name from a royal castle on the Lower Teviot, now in ruins, is largely engaged in the woollen and hosiery trades. Crowds of visitors are annually attracted to it because of its association with Sir Walter Scott, and of the numerous ruins of ecclesiastical buildings which he has rendered famous. Abbotsford, the residence of the poet, stands on the wooded bank of the Tweed, which there forms the western boundary of the county. Melrose Abbey and Dryburgh Abbey, both in ruins, are on the same river, but lower down. *Kelso*, on the northern bank of the Tweed, and opposite the mouth of the Teviot, occupies a site of singular beauty. It, too, has the remains of a stately abbey, overtopping, even in its ruined condition, all the houses around it.

Jedburgh, the county town, lies in the well-sheltered valley of the Jed, which

Fig. 159.—HAWICK.

Scale 1 : 90,000.



is tributary to the Teviot, and whose mild climate ripens fruit which elsewhere in Scotland does not attain to maturity. It is a place of great antiquity, but its castle and turreted walls did not shield it from being repeatedly burnt and pillaged by English invaders. The ruins of its abbey are imposing even in their decay. Sir David Brewster and Mrs. Somerville were born at Jedburgh. "Jethart Justice" became proverbial during the border wars, when it was applied to marauders who were hanged first and tried afterwards. *Hawick* is a thriving manufacturing town on the Teviot.

BERWICKSHIRE is a maritime county to the north of the Tweed, which, in addition to the fruitful plain of the Merse, and the valleys of the Lauder and the Black and White Adder, includes the southern slopes of the Lammermuir Hills and a small district along the cliff-bound coast.

Berwick-on-Tweed having been severed from the county and attached to England, there is not a single large town. At *Coldstream*, on the Tweed, General Monk, in 1660, raised the regiment still called the Coldstream Guards. *Earlston* and *Lauder* are villages in Lauderdale. *Chernside*, near the confluence of the two Adders, is the birthplace of David Hume. *Dunse*, the largest town in the county, though its population numbers less than 3,000 souls, is engaged in handloom weaving; whilst *Greenlaw*, on the Black Adder, though the county town, is merely a small village with a fine county hall and gaol. *Eyemouth*, the only seaport

Fig. 160.—FIRTH OF FORTH.

Scale 1 : 177,000.



of the county, engages in the herring fishery. The coast to the north of it is exceedingly wild. Two of its promontories are occupied by the lighthouse of St. Abb's Head, and by Fast Castle, described as Wolf's Crag in the "Bride of Lammermuir." The ravine of the Pease, or Peaths, descending to the coast, is spanned by a singular bridge.

The three counties which lie along the southern coast of the Firth of Forth have been carved out of the ancient district of Lothian, and are hence still frequently described as East, Mid, and West Lothian.

Scale 1 : 100,000 Soundings in Fathoms

EDINBURGH AND THE FIRTH OF FORTH

10 Miles



HADDINGTON, or EAST LoTHIAN, consists in the main of a fertile lowland, above which rise a few detached groups of hills, and which is bounded on the south by the Lammermuir Hills (1,732 feet). The Tyne Water crosses the lower part of the county from west to east. The coast, with its bold cliffs interrupted by sandy bays, is perilous. No part of Scotland surpasses this county in its agriculture.

Haddington, the county town, on the Tyne and at the foot of Gareton Hill, is one of the principal grain markets in Scotland. Rape-seed cakes and bone manure are manufactured. The fine old Gothic church, the "lamp of Lothian" of other days because of its beauty, is now in ruins. *Gifford*, the birthplace of John Knox, lies to the south. *Dunbar*, near the mouth of the Tyne, with a harbour difficult of access, is one of the principal seats of the herring fishery. Its dismantled castle, on a jutting rock perpetually gnawed by the sea, is famous for its gallant defence by "Black Agnes," the Countess of March. Two battles were fought near Dunbar in 1296 and 1650, and in both the Scots were routed. *North Berwick* has become the most fashionable watering-place on the east coast of Scotland, but engages also in the herring fishery. Near it, on a bold cliff half surrounded by the sea, stands Tantallon Castle, and 2 miles from the shore rises Bass Rock, covered with sea-fowl. In the western part of the county are *Cockenzie*, a fishing village; *Prestonpans*, with a famous brewery, and noteworthy, moreover, on account of the battle fought in its neighbourhood in 1745; and the market town of *Tranent*, whose inhabitants engage in the manufacture of silk, and near which are a few collieries.

The county of EDINBURGH, or MID-LoTHIAN, extends southward from the Forth on either side of the sterile Pentland Hills, which occupy its centre and terminate only in Arthur's Seat and the Castle Hill of Edinburgh. The fertile valley of the Upper Esk separates the Pentland from the Moorfoot Hills, and between these latter and the Lammermuir Hills, on the borders of Berwick, a pass 790 feet in height leads into the valley of the Gala, which is tributary to the Tweed. The Water of Leith drains the western portion of the county, and the river Almond forms the boundary towards East Lothian. Agriculture is carried on with care and success, but the inhabitants possess also other resources in their collieries, shipping trade, and various manufactures.

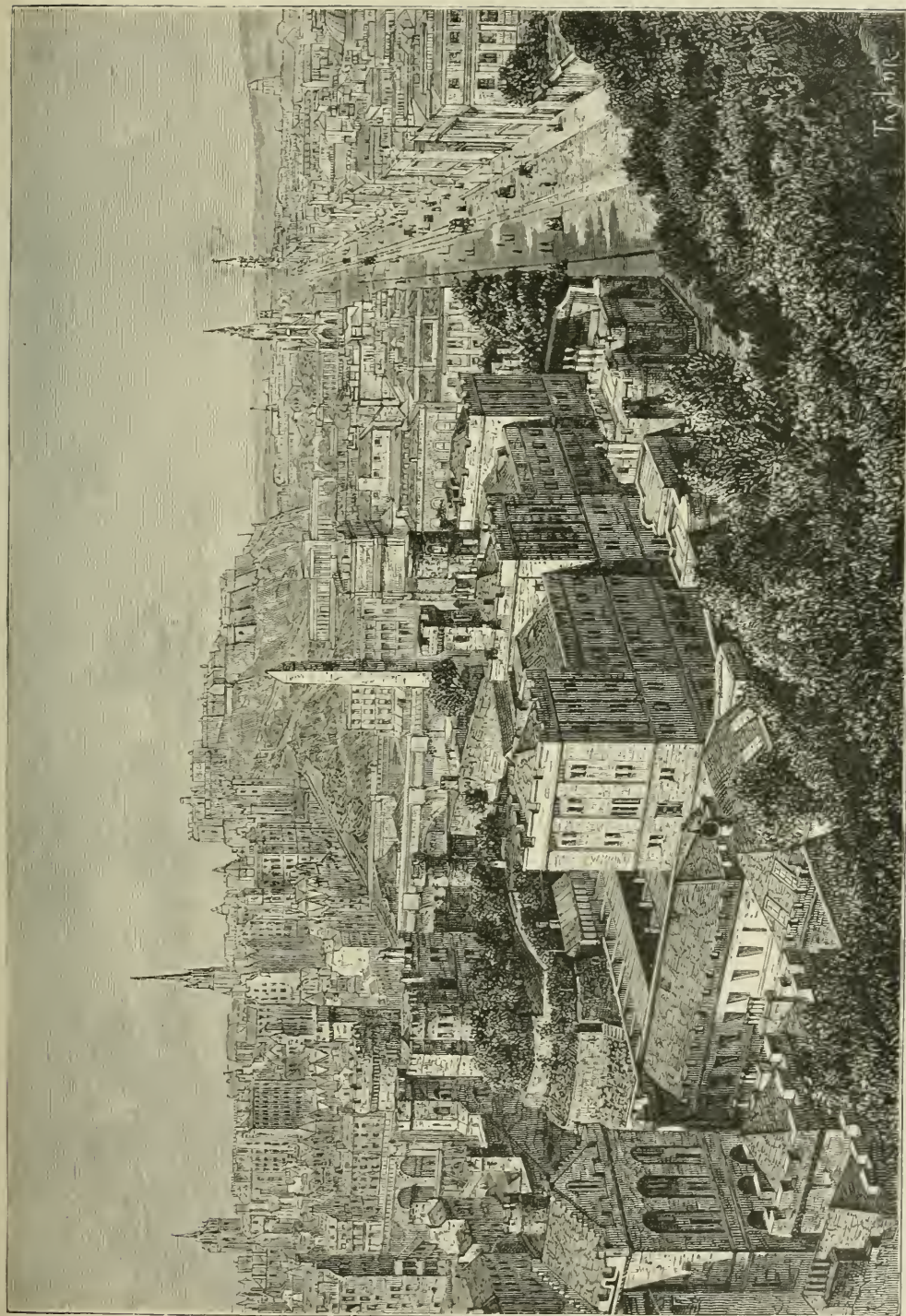
Edinburgh, the capital of Scotland, may certainly claim to take a place amongst the beautiful cities of Europe. It possesses, above all, what most of the towns of England are deficient in—originality. It is one of those rare places whose site would become picturesque country if all the houses were to be suddenly swept away. Edinburgh is unique in the natural beauty of its position, and the art with which its inhabitants have availed themselves of the inequalities of the ground in erecting their monuments and laying out their gardens. Moreover, like Glasgow, it enjoys the advantage of being built of stone and marble, the neighbouring quarries of Craigleith and Corstorphine having supplied the material required by its builders. In poetical language Edinburgh is called "Dunedin," while one of its vulgar epithets is "Auld Reekie."

In the eastern part of the plain through which the Water of Leith takes its

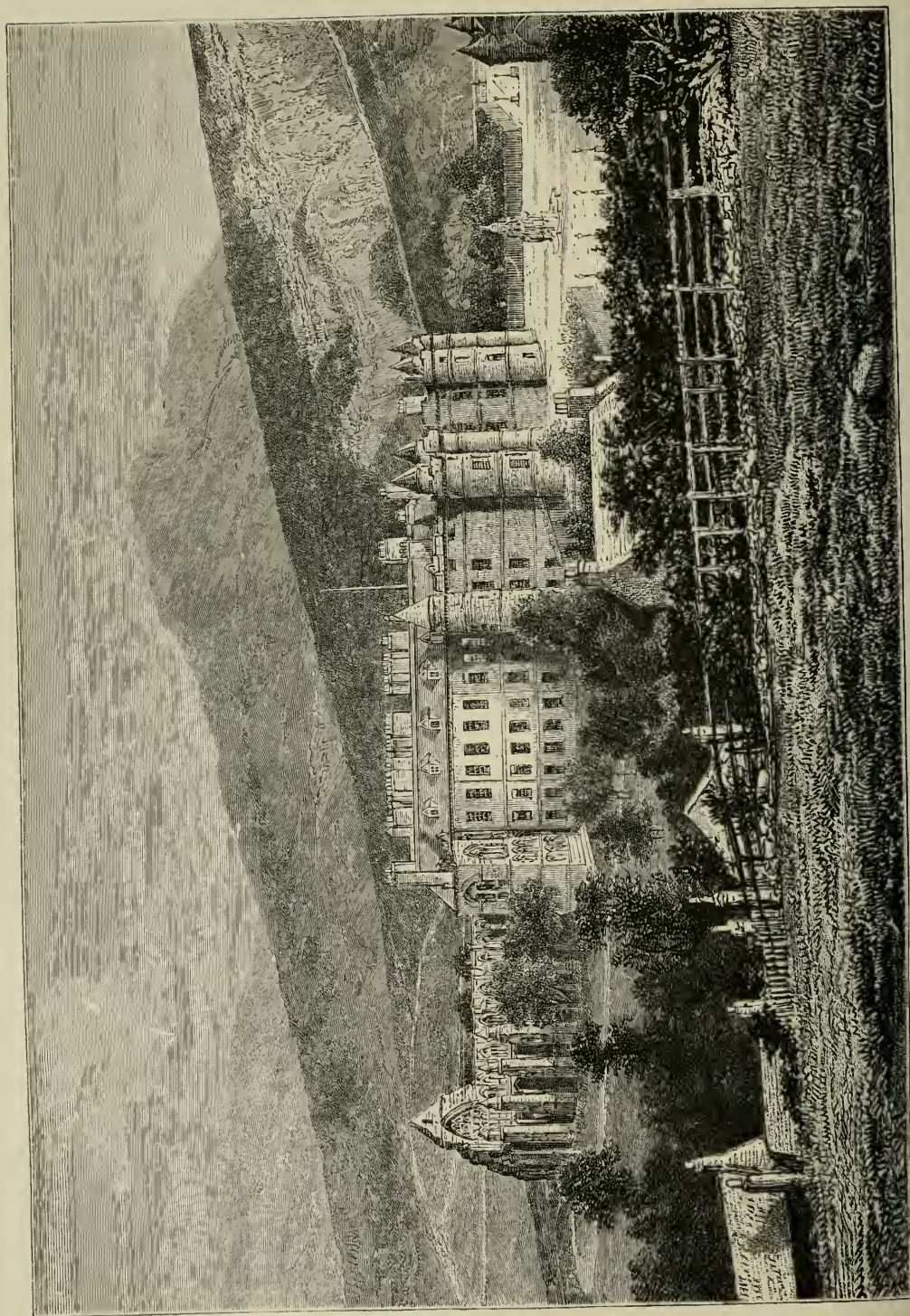
devious course there rises a rock of basalt, forming a bold scarp to the east, but sinking down gently towards the west. A picturesque castle of irregular shape, and formed of groups of buildings erected in the course of ten centuries, occupies the western brow of this rock, whilst at its foot rises the old palace of Holyrood, with its crenellated towers and the ruins of its abbey. Between castle and palace, on both slopes of the hill, the old town of Edinburgh has been built, its houses rising, according to the nature of the ground, to a height of seven or eight floors. This site, however, soon proved too small for the growing city, which invaded the valley to the south of the castle, and climbed the slopes beyond. Later still, during the second half of the eighteenth century, it overflowed the narrow ravine to the north, and sumptuous dwellings arose upon a third hill, which slopes gently down in the west and north in the direction of the Water of Leith and the sea. Bridges joined the new quarters in the north and south to the old town, whilst beautiful gardens, ornamented with statues, occupy the vacant spaces and the ravine, formerly the abode of a pestilential swamp. Calton Hill, already surrounded by houses, and Arthur's Seat (822 feet), both to the east, afford excellent views of the city with its public buildings and gardens, of the fertile country around it, its ports and jetties on the Firth of Forth, and of distant mountains as far as Ben Lomond. At the present day unbroken avenues of houses join Edinburgh to Leith, its principal port, as well as to the minor ports of Newhaven and Granton; but there was a time when an uninhabited plain separated it from the sea. This was a feature which it had in common with Athens. The citizens of Edinburgh could therefore talk about their Piræus and Acropolis; and indeed, looking to the many great men whom the capital of Scotland has produced, no other town has equal claims upon the epithet of "Athens of the North." Foremost amongst the famous children of Edinburgh are Hume, Robertson, Dugald Stewart, Erskine, Napier (the inventor of logarithms), Walter Scott, Brougham, Macaulay, Hugh Miller, and Nasmyth.

The ancient capital of a kingdom, Edinburgh still guards regalia in its castle, and one of its buildings retains the name of Parliament House, although now merely the seat of the High Courts of Judicature and the depository of the Advocates' and Signet Libraries, supported by the advocates and writers to the Signet, but thrown open, with commendable liberality, to the public at large. The Advocates' Library is entitled to a copy of every book published in the United Kingdom, and amongst other treasures bearing upon the history of Scotland, it contains the precious collection of Gaelic manuscripts formed by the Highland Society in the course of the inquiry instituted to determine the authenticity of Ossian's poems. The Signet Library is rich in works relating to the history of England and Ireland. Holyrood Palace possesses the remains of its abbatial church and a few curious pictures, but historical associations attract the crowds who visit it more especially to the apartments formerly occupied by Mary, Queen of Scots.

The most prominent public buildings of Edinburgh are consecrated to education. The university, founded in 1582, is attended by 1,500 students, and possesses a library of 160,000 volumes and valuable museums. The Museum of



EDINBURGH, FROM CALTON HILL



HOLYROOD PALACE AND ARTHUR'S SEAT.

Science and Art, modelled upon that of South Kensington, but possessing in addition a natural-history collection, adjoins it. The observatory on Calton Hill, by the side of Nelson's unshapely monument and of an incomplete reproduction of the Parthenon, intended to commemorate the glories of Waterloo, is a dependency of the university. There are a famous medical school, various theological colleges, a veterinary college, a high school, Fettes College (richly endowed), and many other schools in which a classical education, preparatory to a university career, may be secured. On the "Mound," which connects the old town with the new, rise two classical structures, namely, the Royal Institution, with an antiquarian museum and a statue gallery, and the National Gallery of Paintings. Statues and monuments are numerous in every part of the town, most prominent being the Gothic canopy sheltering a seated statue of Sir Walter Scott. Botanical and zoological gardens still further bear witness to the zeal which animates the citizens in all that relates to education, and prove that they are firmly resolved that their city shall deserve its epithet in the future as it has earned it in the past. Nor is there any lack of charitable institutions. The Royal Infirmary; Heriot's Hospital for the Education of Fatherless Boys, founded by James's "Jingling Geordie;" and Donaldson's Hospital for Deaf and Dumb are institutions of which any city might feel proud.

Edinburgh is not a manufacturing town, although in the matter of literary publications of every kind it may fearlessly take its place by the side of London. In no other town of Britain are the members of the liberal professions so numerous. Unfortunately the number of proletarians is as great as in many a factory town, and the narrow "closes" of the old town hide a population seething in vice, which ever attends upon misery.

Leith, the maritime suburb of Edinburgh, is a seat of manufactories, where we meet with foundries, engineering works, breweries, india-rubber and gutta-percha works, foundries, glass houses, and rope-walks. The harbour, one of the oldest in Scotland, is protected by two long piers, 3,530 and 3,123 feet in length, and regular steam communication exists between it and Iceland, Denmark, Germany, Holland, Belgium, France, and the coasts of England and Scotland. *Newhaven*, a small fishing village, adjoins Leith, whilst *Granton*, though only a mile to the west of it, is an independent port, connected by a steamboat ferry with Burntisland, in Fife. *Portobello*, thus named by a sailor who had taken part in the assault upon a town of the same name in America, has grown into favour as a watering-place. Near it are the Joppa salt works.

Musselburgh, at the mouth of the Esk, spanned by three bridges, of which the oldest is said to have been constructed by the Romans, who had a camp on Inveresk Hill, has extensive links, affording the best golfing ground near Edinburgh. Pinkie House, an interesting mansion, near which the Earl of Hertford defeated the Scots in 1547, and Carberry Hill, where, in 1567, Queen Mary surrendered to her insurgent nobles, are in the neighbourhood. *Dalkeith*, a small manufacturing town and busy grain market, with collieries near it, lies a few miles up the river, at the confluence of the North and South Esk. Close to it

are Dalkeith Palace, a seat of the Duke of Buccleuch, and Newbattle Abbey, the residence of the Marquis of Lothian. Borthwick Castle, where Queen Mary resided after her unfortunate marriage with Bothwell, lies to the south-east. Full of interest are the banks of the North Esk, which flows along the eastern foot of the Pentland Hills. Beyond the manufacturing village of *Lasswade* we pass *Roslin*, with the ruins of its beautiful Gothic chapel; the moor on which the Scots, led on by Comyn, scattered three English hosts "beneath one summer sun;" and *Hawthornden*, the seat of Drummond, the poet and friend of Shakspeare and Ben Jonson. Higher up still we pass through the romantic scenery described in Allan Ramsay's pastoral poem, "The Gentle Shepherd," and finally reach the small town of *Pennyquick* and its paper-mills.

Far less interesting is the region to the south-west of Edinburgh. The only villages there are *Mid-Calder*, on Almond Water, and *West Calder*, still higher up in the hills, where oil is distilled from shale.

The county of LINLITHGOW, or WEST Lothian, is a hilly tract of country, for the most part of great fertility, and rich in iron and coal, which stretches from the Firth of Forth into the valley of the Clyde. *Linlithgow*, the county town, seated on a little *lin*, or lake, was anciently the Versailles of the Kings of Scotland, and in its royal palace, burnt down in 1746, Mary Stuart was born. *Borrowstounness*, or *Bo'ness*, to the north of Linlithgow, on the Firth of Forth, is a shipping port and colliery town, and its galleries extend beneath the Firth until they nearly meet those driven from the coast opposite. Towards the close of last century the owner of these mines, the Earl of Kincardine, had a circular quay constructed in the middle of the Firth, from which a shaft gave direct access to the mine. This curiosity existed for many years, until an exceptionally high tide washed over it, flooded the mine, and drowned the miners that were in it. Up to 1775 all miners and salt-makers of Lothian were serfs, attached to the soil, and sold with it. Their definitive liberation only took place in 1795, and there still live old men in Scotland who were born slaves.* Travellers described these miners as reduced by misery to the level of beasts; but their descendants have much improved in appearance, and no longer attract attention by their gauntness and hollow eyes.

Queensferry, at the narrowest part of the Firth, will, in the course of a few years, be joined to North Queensferry by one of the most stupendous suspension bridges ever constructed. The roadway of this bridge will lie 150 feet above high water, and its chains will be supported upon eight towers, of which those on the island of Inchgarvie, in the middle of the Firth, will rise to the extraordinary height of 596 feet. The spans on either side of the island will be 1,600 feet in width.

Bathgate is the principal town in the interior of the county. It has an oil-shale distillery, and depends largely upon its trade in corn and cattle, and the neighbouring collieries. Near it are *Armadale*, *Crofthead*, and *Torphiechen*, the latter with the ruins of a preceptory of the Knights of St. John.

* Hugh Miller, "Edinburgh and its Neighbourhood;" Lord Rosebery, at the Social Science Congress, Glasgow, 1874.

STIRLINGSHIRE lies along the south of the Forth, which is bordered from its estuary up to Flanders Moss by a tract of alluvial land, formerly subject to be flooded. The upper portion of the county is shut in between Loch Lomond and the Upper Forth. It forms part of the Highlands, and rises in Ben Lomond to a height of 3,192 feet. The centre of the Lowland portion is traversed by ridges of igneous rock forming the Lennox Hills and Campsie Fells (1,894 feet). On the north these hills are bounded by a strip of old red sandstone, whilst on the south they border upon carboniferous limestone and coal measures.

Falkirk, the principal town in the eastern part of the county, lies on the margin of the alluvial plain, not far from the Carron. It is the centre of a rich agricultural district, with important cattle fairs, and its vicinity is lit up at night by the fires of numerous iron works, most important amongst which are the Carron Works, 2 miles to the north. Falkirk was formerly of great strategical importance, for through it led the highway which armies desirous of passing round the head of the Firth of Forth were obliged to follow. Numerous battles have been fought in its vicinity. In 1258 Edward I. inflicted a defeat upon the Scotch; in 1746 the Pretender routed the English army. *Grangemouth*, at the mouth of the Carron and of the Forth and Clyde Canal, though only founded in 1777, has become a place of considerable commerce. It is an eastern outport of Glasgow. Higher up on the Carron are *Kinnaird*, the birthplace of Bruce, the traveller, and *Denny*, a small manufacturing town. Crossing the water-parting, we enter the basin of Kelvin Water, a tributary of the Clyde. Near its northern bank, and in the vicinity of Graham's Dyke, or Antoninus's Wall, are the small towns of *Kilsyth*, *Lennoxtown*, and *Milngavie*, which have bleaching grounds and print works, and lie within the manufacturing district of which Glasgow is the centre.

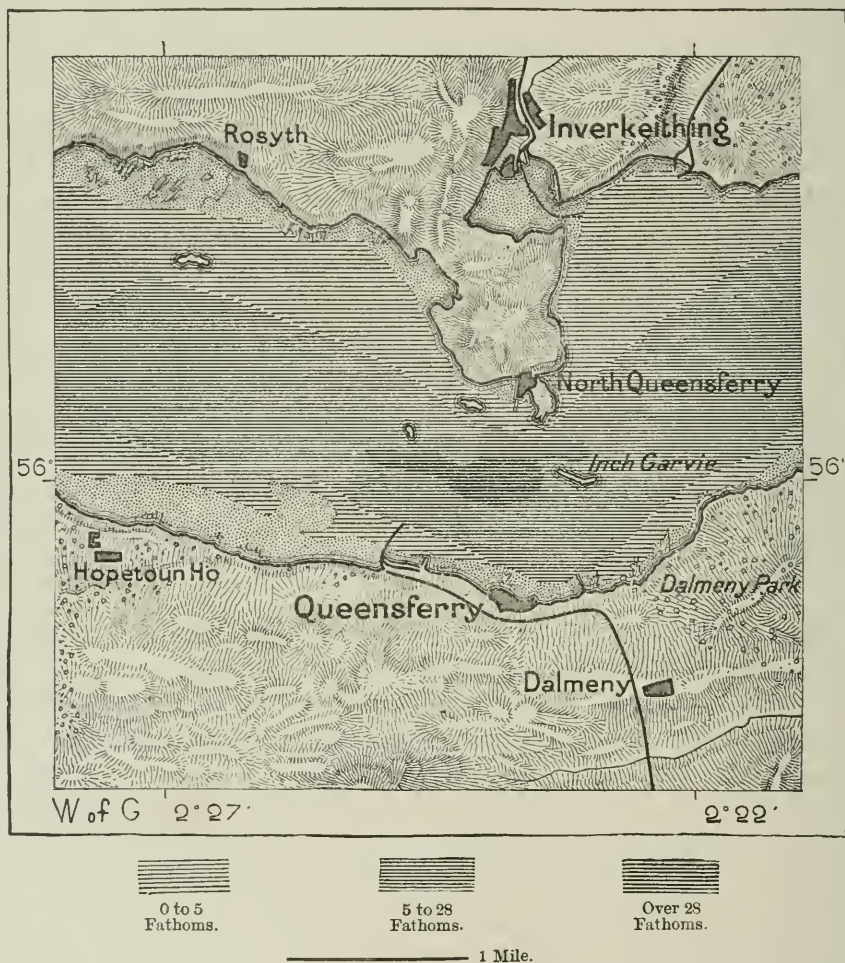
Stirling, the county town, occupies a site admirably adapted for the defence of the passage of the Forth, whose valley is here confined between two steep rocks. Stirling Castle, which still commands the town, is associated with many events in the history of Scotland. A colossal statue of Robert the Bruce has been raised within its precincts, whilst the rock on the opposite side of the valley is crowned with a tower commemorating the first victory secured by Wallace in 1297. The view from the battlements of the castle is unsurpassed for beauty in Scotland, and extends from the summits of the Grampians along the Links of the Forth to the head of its Firth. Several of the old mansions in the town remind us of similar buildings in Rouen, and prove the prevalence of French taste during the sixteenth century. South of Stirling are *St. Ninian's*, inhabited by nail-makers, and *Bannockburn*, which manufactures tartans. It was near these villages that Robert the Bruce defeated the English in 1314. *Bridge of Allan*, 2 miles to the north of Stirling, is much frequented for the sake of its mineral springs and its delightful neighbourhood. *Kippen*, a village on the Forth, 11 miles above Stirling, is noted for its whiskey.

The small county of CLACKMANNAN stretches from the Ochill Hills (Ben Cleuch, 2,352 feet) to the alluvial plain bordering upon the Firth of Forth, and

is traversed by the Northern and Southern Devon rivers. The former of these rivers, not far from the Rumbling Bridge, forms the falls of "Caldron Linn." It is rich in coal and iron, and its inhabitants are employed in mining, in the manufacture of woollen stuffs, and in other branches of industry. *Alloa*, its largest town, lies near the head of the Firth. Its manufactures are of importance. They include plaids and shawls, steam-engines, ships, snuff, whiskey, and ale.

Fig. 161.—THE NARROWS OF QUEENSFERRY.

Scale 1 : 70,000.



Dollar, with Castle Campbell, the old stronghold of the Argylls; *Tillicoultry*; and *Alva* (the latter in an outlying part of Stirlingshire), with disused silver mines, are small manufacturing towns in the valley of the Northern Devon, and at the foot of the Ochills. *Clackmannan*, the county town, is a mere village on the Southern Devon.

KINROSS is a small inland county, shut in between the Ochill Hills and the basaltic Lomond Hills (1,713 feet), with its centre occupied by a beautiful sheet

of water, Loch Leven, on one of the islands in which stands Lochleven Castle, in which Mary Stuart was imprisoned in 1567. The lake is famous for its fish. *Kinross*, the county town, stands on the margin of the lake, and has manufactures of linen and woollen. *Milnathort*, a flourishing village near it, is noteworthy as possessing the oldest public library in Scotland.

FIFE consists of the peninsula which juts out towards the North Sea, between the Firths of Tay and Forth, and terminates in Fife Ness. The northern portion of this peninsula is traversed by an eastern continuation of the Ochill Hills, composed of igneous rock. The fertile valley of the river Eden, or the Howe of Fife, separates this part of the county from its southern and larger portion, almost wholly covered by carboniferous rocks, capped here and there with sheets of basalt, tuff, and volcanic agglomerate. There is much fertile land, and extensive tracts have been planted with trees. Coal and iron mining, the manufacture of linen, and the fisheries are of importance.

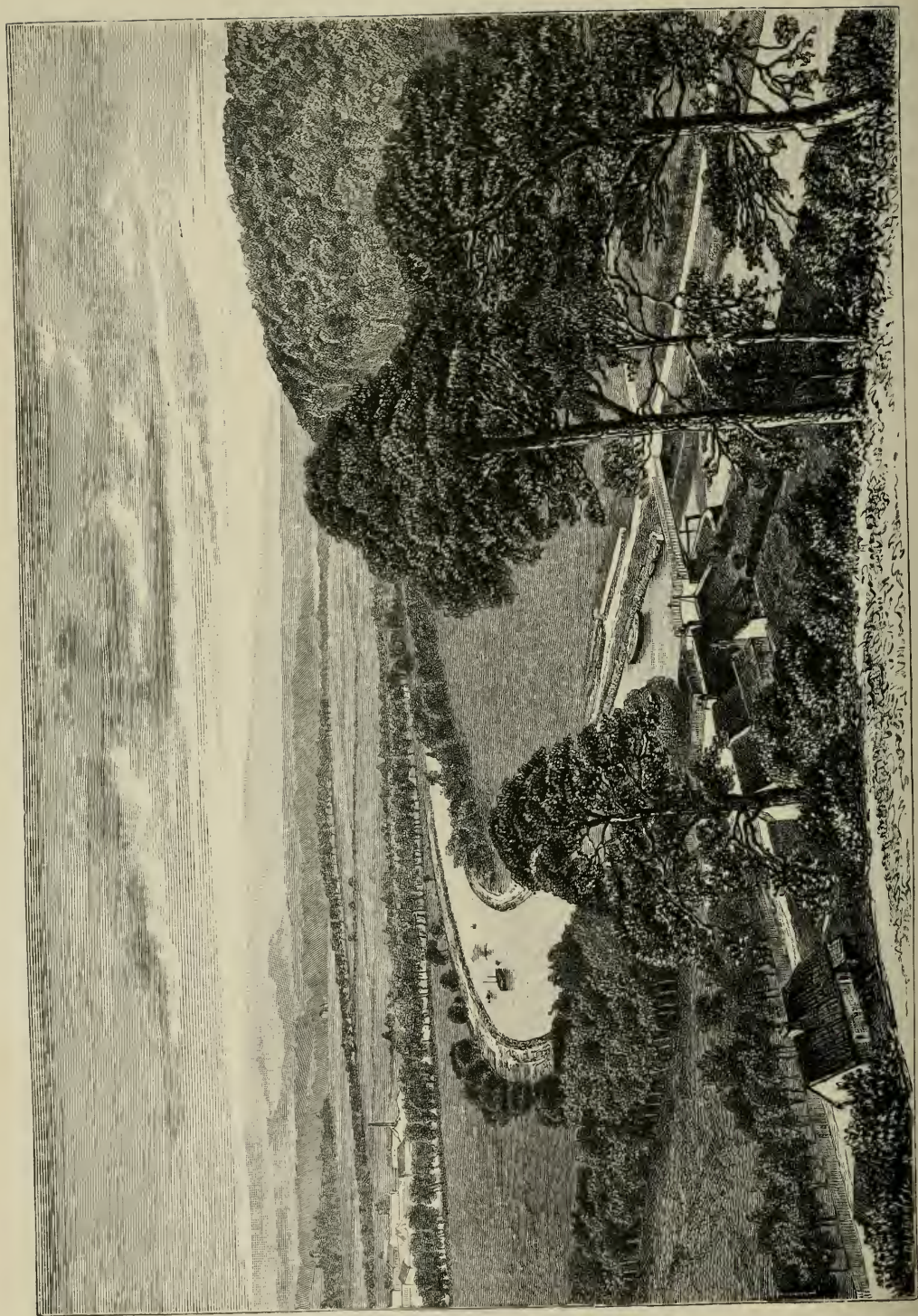
Dunfermline, on the steep bank of the Lyn Water, has ruins of a royal palace and of an abbey, and is the principal seat of the linen manufacture. Coal mines and iron works (including those of Oakley) are in its neighbourhood. The whole of the coast of the Firth of Forth is studded with fishing villages and towns. *Inverkeithing* and *North Queensferry* are close to the northern end of the tremendous railway bridge now being constructed over the Forth. Lower down are *Dalgetty*, with salt works and collieries; *Aberdour*; *Burntisland*, with an excellent harbour; *Kinghorn*; and *Kirkcaldy*, the birthplace of Adam Smith. Kirkcaldy is a place of considerable importance, with rope-walks, flax-mills, and a good local trade. East of it are *Dysart*, where coal is shipped; *Wemyss* and *Buckhaven*, two fishing villages; and *Leven*, at the mouth of the river of the same name, which flows down from Loch Leven. On the banks of that river are *Markinch*, with collieries, flax, and cotton mills, and *Leslie*, with flax and bleaching works. *Lochgelly* lies in a tributary valley near a small lake. Once more returning to the coast, we pass the fishing villages of *Largo*, *Earlsferry*, *Pittendree*, and *Anstruther*, and doubling Fife Ness, find ourselves off the perilous port of the famous old city of *St. Andrews*, which was of great commercial activity formerly, but now deserted for places more favourably situated. There are the ruins of a cathedral wrecked by the Calvinists, and near it the tower of a chapel founded by St. Regulus, as also the remains of a castle overhanging the sea. The university, founded in 1411, is the oldest in Scotland, and, with its residential colleges, is more like Oxford and Cambridge than are the other universities of the country. Foremost amongst the other scholastic establishments of the town is Madras College, founded in 1833 by Dr. Andrew Bell for the purpose of practically testing the monitorial system of education invented by him. The salubrious air, no less than the educational advantages of St. Andrews, has attracted many well-to-do residents.

The river Eden enters the sea to the north of St. Andrews, and in the centre of its fertile valley stands *Cupar*, the county town, with many curious old buildings and various industries. Pipe-clay is found in the vicinity, and manufactured into pipes. Higher up the Eden are the small market towns of *Auchtermuchty* and

Falkland, with the "palace" in which the eldest son of Robert III. died of starvation.

Ferryport-on-Craig occupies a commanding position at the mouth of the Tay, opposite *Broughty*. *Newport* and *Balmerino* are villages on the Tay, between which stood the bridge, destroyed in December, 1879. *Newburgh*, higher up, on the border of Perthshire, beautifully situated, carries on a considerable trade in corn and coals. Near it are the ruins of the abbey of Lindores.





THE CALEDONIAN CANAL.



CHAPTER XIV.

NORTHERN SCOTLAND.

(THE COUNTIES OF PERTH, FORFAR, KINCARDINE, ABERDEEN, BANFF, ELGIN, NAIRN, INVERNESS, ROSS AND CROMARTY, SUTHERLAND, CAITHNESS, ORKNEY, SHETLAND, AND ARGYLL.)

GENERAL FEATURES.



THIS is a portion of the British Islands which, compared with England and Southern Scotland, is but thinly populated. In its great geographical features, its relief, contours, and coast-line, it resembles Scandinavia rather than any other part of Great Britain. If the sea once more flooded the broad plain stretching from the Forth to the Clyde, its character of insularity would hardly become more apparent than it is now. Upper Caledonia is, in fact, a large island, with smaller islands for its satellites.

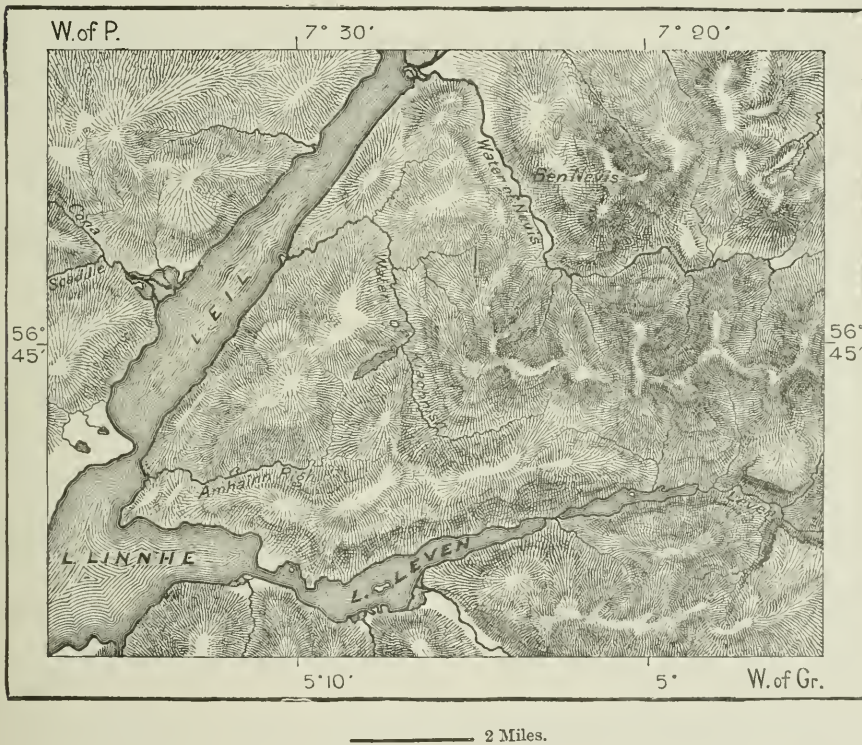
Far more elevated in the mean than England, nearly the whole of it is occupied by mountains; and these mountains form ranges, which extend almost without an exception from the south-west to the north-east. In the south this Highland region is bounded by the Strathmore, or "Great Valley," through which the plain of the Forth is extended north-eastward towards Montrose and Stonehaven. The valleys of the Dee, Doveran, Spey, Findhorn, and Nairn run parallel with that plain towards the German Ocean, and the remarkable fissure of Glenmore, which connects Loch Eil with the Inverness Firth, extends in the same direction. There are few fissures in Europe which in rigidity of contour can compare with this "Great Glen" of Scotland, which, 100 miles in length, joins the Atlantic to the German Ocean. If the Dee were to rise but 100 feet, the northern extremity of Scotland would be separated from the remainder of the Highlands, and the chain of lakes and rivers now occupying the glen converted into a narrow strait of the sea of uniform width. The ocean would then follow the path apparently traced for it in the Caledonian Canal. The execution of that work was greatly facilitated by the existence of the river Ness, which falls into Inverness Firth, and Loch Ness, which occupies the centre of the isthmus. All the engineers had to do was to excavate a canal 22 miles in length, and to furnish it

marine range which forms the Hebrides follows the same direction, as do also the Lofoten, on the coast of Norway, and the plateau of Scandinavia.

As a whole the mountains of Northern Scotland are known under the designation of Grampians—thus named after a Mount Graupus, mentioned by Latin writers, but misspelt by their copyists. These mountains consist of a large number of groups and chains, separated by narrow glens or valleys occupied by lakes. Immediately to the north of the estuary of the Clyde rise the Southern Grampians, whose summits, Ben Lomond (3,192 feet), Ben More (3,281 feet), and Ben Lawers (3,984 feet), are most frequently the goal of tourists, owing to their vicinity to large towns. Farther north rises the almost insulated mass of Ben Cruachan

Fig. 163.—BEN NEVIS.

Scale 1 : 200,000



(3,670 feet), by the side of Loch Awe; and farther away still, beyond Loch Leven, one of the ramifications of the Firth of Lorn, there looms in front of us the highest summit of the British Isles, Ben Nevis (4,406 feet). Its aspect is all the more imposing as its foot is washed in two lochs, and we are enabled at a glance to embrace it in its entirety, from the sands and meadows at its foot to the snow which generally caps its summit. Ben Nevis, the "rock which touches the heavens," forms the western pillar of the Grampians proper, which terminate to the south of Aberdeen, after having thrown off the spur of Cairngorm towards the north-east. At the point of separation rises Ben Muich Dhui, or Mac Dhui (4,296 feet), the second highest mountain of Great Britain. The Grampians are the back-

bone of all Scotland. Protuberances of granite rising into domes above the Silurian strata abound in them, and extend eastward to the German Ocean, whose waves wash the foot of the granitic promontory of Buchan Ness.

The mountains which rise beyond the deep and narrow Glenmore are known as the Northern Highlands. Ben Attow (4,000 feet), their culminating summit, is inferior in height to Ben Nevis, but they do not yield to the Grampians in wildness of aspect. Even in the Alps we meet few sites so severely melancholy as are the Highland glens of Ross and Sutherland. In the Alps we have at least the bright verdure of the meadows, and at an inferior elevation dark pine woods; but most of the Scotch mountains are covered with sombre-coloured greyish heather and peat; black mountain streams run down the narrow glens; and the mists, creeping along the mountain sides, alternately hide and reveal the crests of the rocks, which, suddenly seen through the vapour, loom forth like phantoms, only to sink back again into nothingness. The very solitude has something formidable about it. The earth appears to be void of life. From every summit the eye embraces sheets of water winding between avenues of rocks, against the foot of which we can even occasionally hear the waves beating. From some of the promontories we look down a sheer precipice of 300 feet upon the foaming waves lashing their foot. Cape Wrath, which forms the north-western angle of Scotland, is one of those superb headlands invariably surrounded by the foam of the sea. Duncansby Head, the other angle of the peninsula, is less abrupt; but near it, in the midst of the waves, a few isolated rocks rise like obelisks.

Leipoldt estimates the mean height of Scotland, including the Lowlands, at 1,250 feet, and probably this is not excessive, for the plains are few, and those in the north are of small extent.* Excepting Strathmore, the north-eastern extension of the plain of the Forth, the only level parts of Northern Scotland capable of cultivation are to be found on both sides of Moray Firth and in the peninsula of Caithness, to the north-east. These plains belong to a geological formation different from that of the Grampians, for they are composed of old red sandstone. But though cultivable plains are limited in extent, there exist vast stretches of undulating moorland, gradually rising to heights of many hundred feet, and through which we may wander for miles without meeting with a tree or human habitation. Formerly nearly all the Highland valleys were covered with forests, which extended also up the mountain sides, and several etymologists are of opinion that Caledonia simply means "forest." Near Balmoral, in the upper valley of the Dee, the trunks of pines have been dug up from the peat at an elevation of 2,460 feet above the sea-level. There now survive only miserable remnants of these ancient woods, for since the Middle Ages all the old forests have been either cut down or burnt, on account of their harbouring wolves, boars, and outlaws. On the conclusion of the Highland wars, as many as 24,000 woodmen were employed at a time in destroying the forests.† Nearly all the trees now in the valleys have been

* According to a careful computation made at the Ordnance Survey Office, the mean height of Perth and Clackmannan is 1,144 feet; that of Banffshire, 965 feet; and that of Aberdeen, 875 feet.

† John Wilson; Keltie, "History of the Scottish Highlands."

planted recently. Here and there, in the vicinity of the sumptuous mansions of the owners of the land, the ancient forests have been partly replanted, but away from them the eye meets nought but heather, peat, and naked rocks.

No Scottish mountain pierces the line of perennial snow; but occasionally, in hollows which the sun's rays penetrate but for a few hours in summer, the snow remains during the whole of the year. The precipitation, which exceeds 6 feet on the higher summits of the Grampians, descends in the shape of snow during a considerable portion of the year, and the winds pile up this snow in the valleys in masses too considerable to melt away very quickly. The superabundant moisture, which is not carried off by torrents or "waters" to the sea, is then sucked up by the mosses which cover the sides of the valley, or fills the lochs which occupy their bottom. Several of these water-laden peat mosses extend down the opposite slopes of a plateau, and give birth to rivulets flowing in contrary directions. In countries formed of solid rocks such bifurcations are rare; but they occur frequently in regions like Scotland, where the rocks are covered with a thick layer of peat saturated with water. The numerous breaches in the mountain ranges account for this anastomosis between river basins. One of the most remarkable of these transverse breaches is occupied by Loch Errocht, lying immediately to the east of Ben Alder, a mountain over 3,000 feet in height.

We have seen that the general direction of the mountain ranges, valleys, and rivers of Scotland is from the south-west to the north-east; but besides this, on a closer examination of the surface of the land, we find that the rocks are scored in parallel lines of remarkable regularity. It almost looks as if the whole country had been carded like the fleece of a sheep. All the hills at the foot of the Highlands and in the Lowlands have been planed to their very summits, and to this planing must be ascribed their rounded form and smooth contours.* What other agency can thus have changed the appearance of the mountains, if not that of the glaciers which formerly covered the whole of the country, and whose drift deposits and terminal moraines may still be traced in every valley descending from the Grampians? During the great ice age huge rivers of ice flowed down from the mountains of Scotland. Passing over the hills, they cut away all inequalities of the ground, and spread the débris over the plains: reaching the sea, they sent adrift floating icebergs. According to whether a glacier was more or less formidable, it deposited its terminal moraine at a more or less considerable distance from its head, forming either banks and groups of islands in the arms of the sea, or barriers across the valley. There is not a glen or a strath in all Scotland whose streams were not arrested by one of these moraines, and pent up so as to form a lake, whose level gradually rose until its waters were able to escape. These heaps of glacial gravel, which lie across every river valley, and are sometimes concealed beneath a bed of peat, whilst at others they form undulating hills covered with verdure, are known as *kaims*. They are the *eskers* of Ireland, and the *åsar* of Sweden. The stiff clays of the glacial epoch are called *till* in Scotland, and are the boulder clay of English geologists.

* James Geikie, "The Great Ice Age."

But the rocks detached by glacial action from the summits of the Grampians were not all deposited at the foot of the glaciers. There was a time, during the great ice age, when a large portion of Great Britain was submerged beneath the waters of the Atlantic, and icebergs, cast off by the Scotch glaciers, carried rocks and other débris to considerable distances. Only in this way can we explain the presence of Scotch granite in the clay of Wolverhampton and near Worcester, at a distance of 170 and 200 miles from the mountains whence these erratic blocks can have been derived.* The Hebrides, too, formerly much less elevated than they now are, were planed by icebergs floating across the Minch.† But whilst Caledonia sent its rock-laden icebergs to immense distances, it became in turn the depository of erratic blocks detached from the mountains of Scandinavia. In the county of Aberdeen, and in other parts of Scotland, Norwegian granite occurs in immense quantities. At various places the glacial streams descending from the Scotch and the Scandinavian mountains appear to have met, and deflected each other. The glacial scorings on the rocks of Caithness, for instance, run from the south-east to the north-west, instead of from south to north, in accordance with the direction which the icebergs took when first they started upon their pilgrimage. This deflection, however, is explained if we assume that they encountered an easterly current laden with Scandinavian ice, and were consequently drifted to the north-westward. Similar scorings, traceable to the agency of Scandinavian ice, have been discovered on the rocks of the Orkneys, Shetland Islands, and Färöer.‡

Oscillations of the soil succeeded each other in Caledonia in the course of geological periods. Near Grangemouth the bed of an ancient river has been discovered at a depth of 260 feet beneath the Forth, and this proves that the country must have subsided to that extent since this river flowed across it.§ So considerable and unequal have been the changes of level that boulders of granite are found now at a height greater than that of the mountains from which they were originally detached. The most recent phenomenon of this nature is that of a gradual upheaval of the land. It is owing to this upheaval that the share which the glaciers of Norway had in the formation of Scotland has been revealed to us. Along all the coasts may be observed raised beaches covered with marine shells, some as regular in their contours as if the sea had only recently retired from them, others ravined by torrents, and here and there covered with débris. At a height of 43 feet above the actual level of Loch Lomond can be traced one of these ancient beaches, which must have been formed when that loch was still an arm of the sea, and freely communicated with the ocean. The erratic blocks stranded on the raised beaches of some parts of the coast resemble rows of penguins perched on a projecting terrace. Along the coasts of Aberdeen and Caithness these ancient beaches vary in height from 10 to 160 feet, and their elevation gradually diminishes as we proceed north-

* Mackintosh; Symonds, *Quarterly Journal of the Geological Society*, November, 1877.

† James Geikie, "History of a Boulder."

‡ James Croll, "Climate and Time."

§ James Geikie, "The Great Ice Age."

ward—a proof that the upheaval was unequal in amount, as is at present the case in Scandinavia.* The question naturally arises, whether this evident upheaval took place at the termination of the glacial epoch, or whether it continued during the historical age, down, perhaps, to our own time. It is the opinion of geologists that the principal upheaval occurred during an epoch in which the climate was colder than it is now, for the shells discovered on the raised beaches belong in a large measure to a more northern fauna than that of the neighbouring seas.† However this may be, the village of Kinlochewe, on the western slope of Ross, is sometimes referred to in proof that the upheaval continued after man had taken possession of the land. The Gaelic name of that village signifies “head of Loch Ewe;” but the loch terminates 14 miles below the village, which stands at the upper end of the land-locked Loch Maree. Hence, it is concluded, the bottom which now separates Loch Maree from the sea, and through which runs

Fig. 164.—THE PARALLEL ROADS OF GLENROY.

Scale 1 : 156,000.



the emissary of the lake, can have appeared only after the village had been founded by the Gaels. This feature accounts for the humorous saying, that the Gaelic was spoken even before the birth of the lakes.

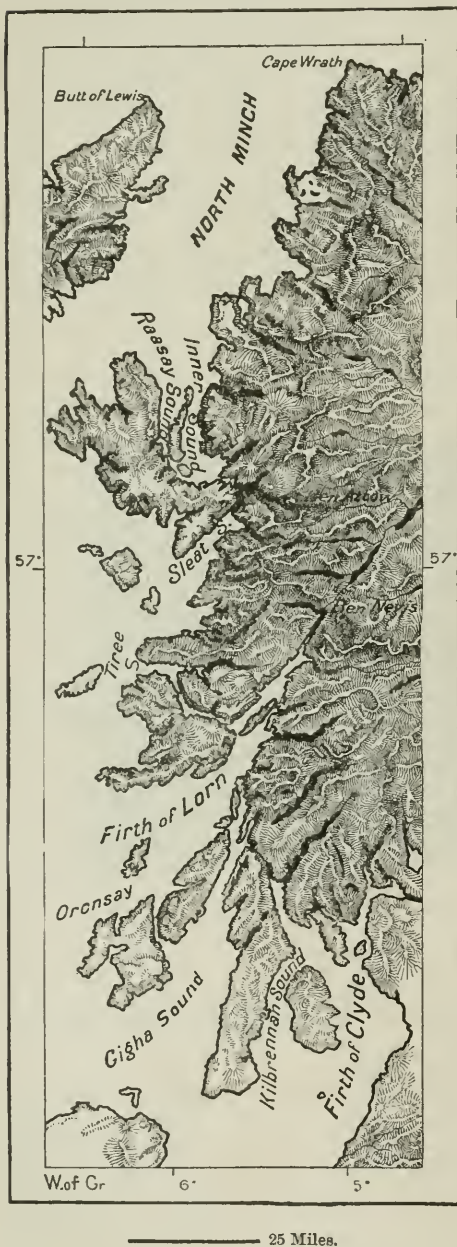
In the interior of Scotland there exist on the hillsides numerous lacustrine beaches similar to those along the coast, and so wide and regular in the contour as to be distinguishable even from a distance of several miles. The most famous of these raised beaches are the “parallel roads” of Glenroy. They occupy corresponding elevations on both sides of a glen descending towards Glenmore. There are three parallel and horizontal “roads” on either side, at elevations of respectively 860, 1,070, and 1,150 feet. The natives account for the existence of these roads by asserting that they were constructed by the kings of old. Their

* S. Laing, *Nature*, 1877.† Smith, *Memoirs of the Wernerian Society*.

origin formed a fertile source of discussion for years, when Agassiz, familiar with the glacier phenomena of the Alps, paid a visit to Glenroy. He at once recognised

Fig. 165.—THE FIRTHS OF WESTERN SCOTLAND.

Scale 1 : 2,500,000.



the ancient beaches of a lake of variable height pent up by a glacier which lay across the outlet of the valley.

The firths of Western Scotland, similar in all respects to the fiords of Norway, also remind us of the work accomplished by glaciers. On looking at a map we cannot help being struck by the contrasts presented by the two coasts of Scotland. The eastern coast is indented by a few arms of the sea, but upon the whole it is remarkable for the regularity of its contour. Quite different is the western, Atlantic coast, between Cape Wrath and the Firth of Clyde. There the irregularities in the contour are innumerable. Peninsulas, curiously ramified, hang to the mainland by narrow necks of sand. Large islands, themselves indented and cut up into fragments, add to the confusion; and in this labyrinth it is only after patient observation that we are able to distinguish between islands and mainland, lakes and arms of the sea. The natives, indeed, apply the same term indifferently to lakes and firths, designating both as lochs, and many a promontory is named by them as if it were an island. Loch Etive is one of the most remarkable of these sheets of water, which are at the same time arms of the sea and inland lakes. The sea actually penetrates up that firth for a distance of 18 miles; but its bed consists of two distinct basins, placed end to end, and separated by a bar, hardly covered with 6 feet of water. At Connel Sound, which lies at the entrance of the lower basin, the tides rush past with the noise

of a cataract. Loch Etive attains a depth of 445 feet, whilst the depth of the sea outside hardly exceeds 150 feet. Loch Fleet, another of these firths, has been converted into a fresh-water lake by means of a simple wall built across its mouth.*

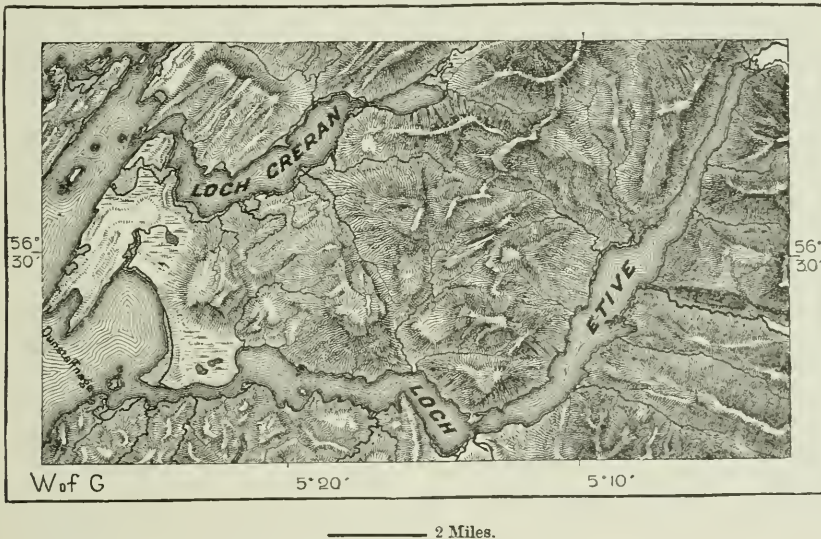
* A. Geikie, "Scenery and Geology of Scotland."

Along many parts of the coast the water in the lochs resembles that of Loch Stennis, in the Orkneys, which is briny at one end and fresh at the other; and like it they have two distinct faunas and floras.*

What, then, is the cause of the contrast between the two coasts of Scotland, a contrast which may also be observed with regard to the Baltic and Atlantic coasts of Scandinavia? Why have the ancient gulfs opening out upon the German Ocean been filled up with alluvium and drift, whilst the innumerable indentations on the west have retained their primitive forms? It is once more the glaciers to which this phenomenon must be attributed. In the glacial age, as in our own days, the moisture-laden winds came from the west and south-west, and precipitation, mostly in the form of snow, was consequently most considerable along the western slopes. But they were not torrents which carried the waters back into

Fig. 166.—LOCH ETIVE.

Scale 1 : 250,000.



the sea; they were glaciers. On the eastern slope the smaller amount of precipitation only sufficed to maintain small glaciers, which never descended beneath the upper valleys, and gave birth to rivers winding through the plain. The contrast in the hydrographical features of the two slopes could not have been greater. Along the eastern coast the sea threw up ridges of sand at the mouths of the gulfs, in which the rivers deposited their alluvium, gradually filling them up, and obliterating the original irregularities in the outline of the coast. On the west, on the other hand, the enormous rivers of ice occupied the valleys through which they took their course, and, instead of filling them up with alluvium, they scooped them out still deeper. Every river of ice and every affluent which discharged itself into it, from the right or left, thus shielded the inequalities in the ground from obliteration; and when the climate grew milder, and the glaciers melted

* Hugh Miller, "Footprints of the Creator."

away, the beds which they had occupied appeared as firths. The moraines, which they had deposited beyond the old line of coast, only rendered more intricate the labyrinth of straits. Owing to the enormous masses of ice which formerly filled them, the depth of several of these firths is very considerable, and far in excess of any to be met with in the North Sea, to the west of the abyssal "deep" of the Skager Rack. Loch Broom, between the counties of Ross and Cromarty, has a depth of 723 feet at its entrance; Sleat Sound, between Skye and the mainland, is 820 feet deep; and the Sound of Mull 720 feet.

Fig. 167.—LOCH TARBERT AND THE CRINAN CANAL.

Scale 1 : 500,000.



Nevertheless the agencies ceaselessly at work must in the end succeed in filling up even the firths of Western Scotland, as of all temperate regions. As an instance may be cited Holy Loch, opposite to the mouth of the Clyde, the larger portion of which has already been invaded by alluvium. Elsewhere the sea lochs have been cut asunder through the agency of lateral torrents, and their upper basin has gradually been converted into a fresh-water lake, which is slowly growing smaller. Not only are the rivers busy in filling up these arms of the sea, but the latter likewise throws the waste of the land upon the shore. We find that the depth of a loch is always greatest on that side most exposed to violent winds, whilst banks of sand are deposited in the less agitated water.* These alluvial deposits, whether of fluvial or marine origin, and perhaps aided by a slow upheaval of the whole land, have already converted several islands along the coast into peninsulas. The peninsula of Morven, for instance, on the western side of Loch Linnhe, is, in reality, an insular mass like its neighbour Mull. The

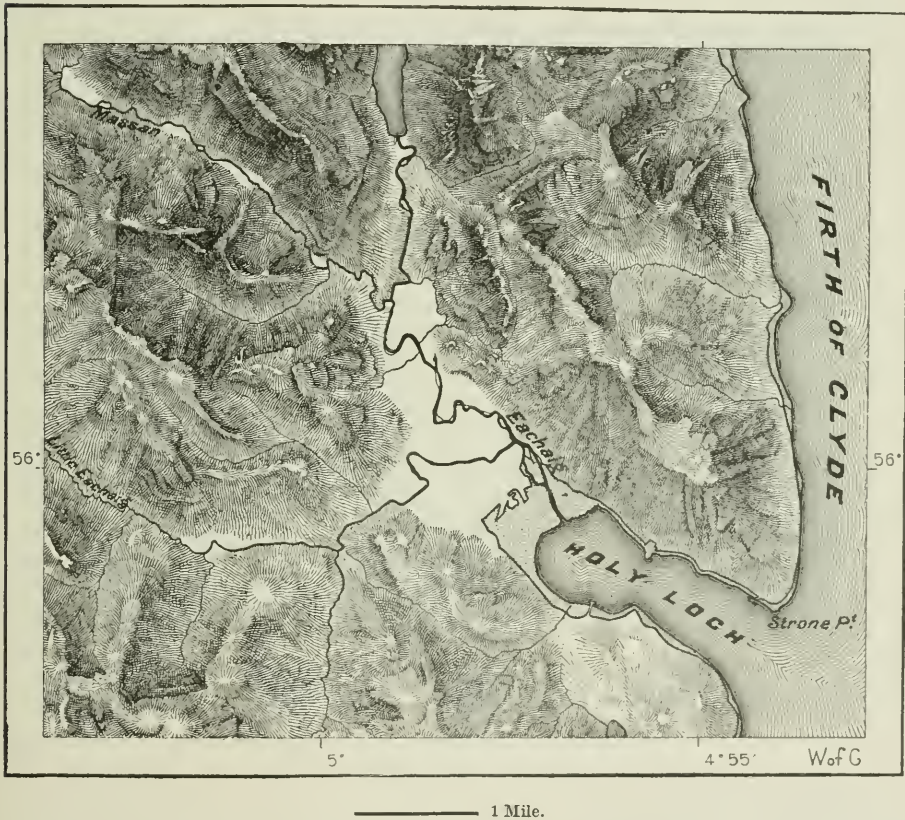
elongated peninsula of Kintyre, whose Gaelic name (*Cean tìre*) means Land's End, or Finisterre, may also be looked upon as an island, for the neck which attaches it to the mainland is no more than 60 feet in height. This neck of land is traversed by the Crinan Canal, 9 miles in length, which is in reality a southern dependency of the Caledonian Canal, and enables vessels drawing 10 feet of water to proceed from the North Sea to the Clyde and Ireland without circumnavigating the northern extremity of Scotland. A similar canal through Kintyre has been projected farther south, where the two Lochs Tarbert approach within three-quarters of a mile of each other.

* Cleghorn, "Observations on the Water of Wick," *Journal of the Royal Geographical Society*.

If we include mere rocks, the islands dependent upon Scotland must be numbered by thousands; but official statistics only mention 788 islands, of which 186 were inhabited in 1871, or 4 less than ten years before. The archipelago, properly to be described by such a name, which lies nearest to the Scotch coast, is that formed by the Orkneys, or "Seal Islands," as their Icelandic name has been rendered.* The distance between Duncansby Head and South Ronaldsha, the southernmost of the group, hardly exceeds 6 miles. Pentland Firth, as the separating channel is called, is dreaded for its currents produced by conflicting tides. Off Stroma boils the whirlpool of Swelkie,

Fig. 168.—HOLY LOCH, AND THE SILTED-UP LOCH OF EACHAIG.

Scale 1 : 100,000.



which a song of the ancient Eddas describes as a mill ever at work to grind the salt of the ocean. During spring tides the current rushes along here with a velocity of ten knots an hour; and in a tempest which raged in December, 1862, the waves, dashing against Stroma, threw up stones and fragments of broken vessels to a height of 200 feet. The strait was no longer wide enough for the passage of the Atlantic waters, and the sea advanced like a wall. Even in ordinary times the

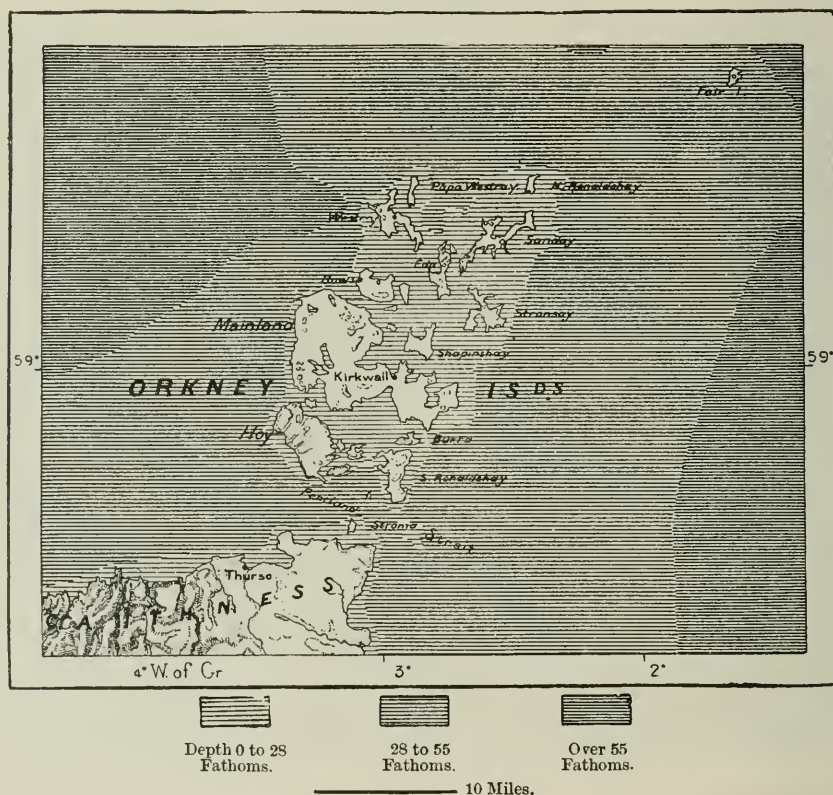
* Richard Burton, "Ultima Thule." Others translate, "Islands of the Point" (Thomas, "North Sea Pilot").

waves are dashed over the northern cliffs of the island, and give birth to a briny stream flowing southwards, on the banks of which the natives have erected a mill.*

Twenty-seven of the Orkneys are permanently inhabited, and about forty smaller islands afford pasturage for sheep. In their contour these islands present all the features of the coast of Western Scotland, and from the sea the archipelago assumes the appearance of a single island bristling with bold headlands and peninsulas. The islands, however, are formed of old red sandstone, and their elevation is but trifling, Ward Hill, of Hoy, their culminating point, only

Fig. 169.—THE ORKNEYS.

Scale 1 : 850,000.



attaining a height of 1,555 feet. Close to the shore of that island rises the Old Man of Hoy, an insulated pillar 300 feet high, with arches below. The Mainland, or Pomona,† is far less elevated than Hoy. Most of the Orkneys are covered by natural meadows, and the peat bogs are of small extent. One of the ancient Scandinavian Earls of Orkney actually received the surname of Torf Einar, or "Turf-cutter," because he regularly visited the neighbouring mainland, where he procured his turf, or peat. The old lords of these islands likewise

* Peach; Geikie, "Scenery and Geology of Scotland."

† A Scandinavian name, and not Latin: its meaning is unknown.

visited Scotland when desirous of hunting, for there only existed forests harbouring wild beasts. The Orkneys are now inhabited by peaceable agriculturists and fishermen, but during the early Middle Ages they were of great strategical importance. They then afforded shelter to the fleets of the Norwegian vikings, who thence threatened equally the western and eastern coasts of Great Britain. During summer every part of the British Islands lay open to their attack, whilst in winter they shut themselves up in their fortresses, and kept high festival with barbaric splendour.

The Shetland Islands (Zetland or Hjaltland) lie in the same axis as the Orkneys, from which they are separated by a channel 48 miles across. In the centre of this strait lies Fair Island, otherwise Farøe, the "Island of Sheep," a scarped mass of rock rising to a height of 706 feet. Upon this desolate island was cast, in 1588, the flag-ship of the Spanish Armada, and the natives are hence supposed to have Castilian blood in their veins. Many amongst them, finding their island too small for their support, have sought a new home in Canada. There are few cliffs in the world superior in wild grandeur and steepness to those of Northern Shetland. When circumnavigating the Mainland, cape rises beyond cape from above the deep sea, which has worn caverns into the foot of the cliffs. One of these caverns, or *helyers*, is known as the "Orkneyman's Harbour," on account of its having once afforded shelter to an Orkney fisherman pursued by a French privateer. Although the mean height of Shetland is greater than that of the Orkneys, there is no summit equal to Ward Hill, of Hoy. Roeness Hill, a granitic dome on the northern peninsula of the Mainland, only rises 1,476 feet.

The archipelago, since 1766 the property of the Earl of Zetland, consists of more than 100 islands, of which 34 are inhabited, the others being mere *stacks*, or pillars of rock; *skerries*, or foam-washed reefs; and *holms*, or small islands, affording pasturage to the spirited Shetland ponies and to diminutive cattle, lately crossed with English shorthorns.* For the most part the soil of the islands consists of heathy wastes, and there exists only one tree, about 10 feet high, which is looked upon as a great curiosity. The remains of birch forests have, however, been discovered in the peat bogs.

Secure harbours are numerous between these islands, and the depth of the sea, even within a short distance of the land, generally exceeds 30 fathoms. But this very depth often proves a source of danger to the mariner, as the islands are frequently enveloped in dense fogs, and an appeal to the sounding-lead affords no information as to the proximity of land. Often, too, powerful *roosts*, or tidal currents, carry vessels out of their proposed course into the midst of cliffs. Foul Island, or Foula, which lies in mid-ocean, 18 miles to the west of Mainland, is more formidable of aspect than any other island of the Shetland group. The small creek on its south-eastern coast is at all times dangerous of approach. The Kaim, or culminating summit of the island, rises to a height of 1,370 feet, and

* John Wilson, "British Farming."

its cliffs present sheer precipices of 1,000 feet. The bold men who visit this rocky island in search of birds and birds' eggs cause themselves to be attached to a rope, and lowered from the top of the cliffs.

The Shetland Islands as well as the Orkneys have frequently been identified

Fig. 170.—THE SHETLAND ISLANDS.

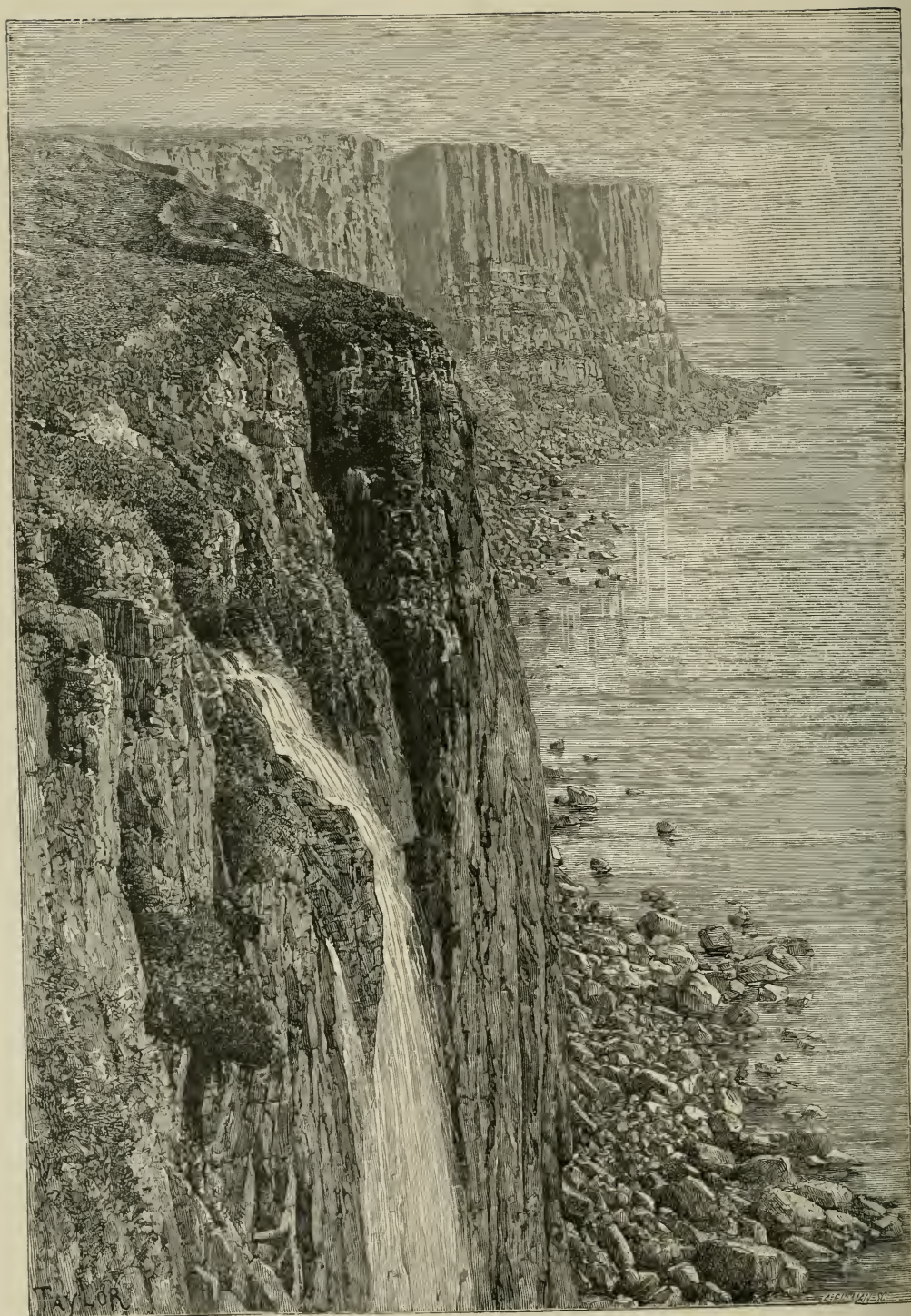
Scale 1 : 400,000.



with the Ultima Thule of ancient writers, although there can be no doubt that the Thule discovered by Pytheas of Marseilles, and placed by him under the Arctic Circle, must have been Iceland. The Hebrides, which lie to the west of Scotland,



EILAN DONAN CASTLE—LOCH ALSH AND LOCH DUCH.



ISLE OF SKYE—THE KILT ROCK.

were likewise looked upon, for a considerable period, as one of the most northern countries in Europe. Yet, as we have already seen (*vide* p. 301), to the Scandinavians they were Southern Islands. The Scotch, however, know the Hebrides as Western Islands, and two amongst them are still more emphatically known as *Uist*, or "West." The ancients called these islands *Hebudes*, or *Ebudes*, wrongly read *Hebrides* by a careless copyist. Another ancient name is that of *Innis Gail*; that is, "Isles of the Gaels."

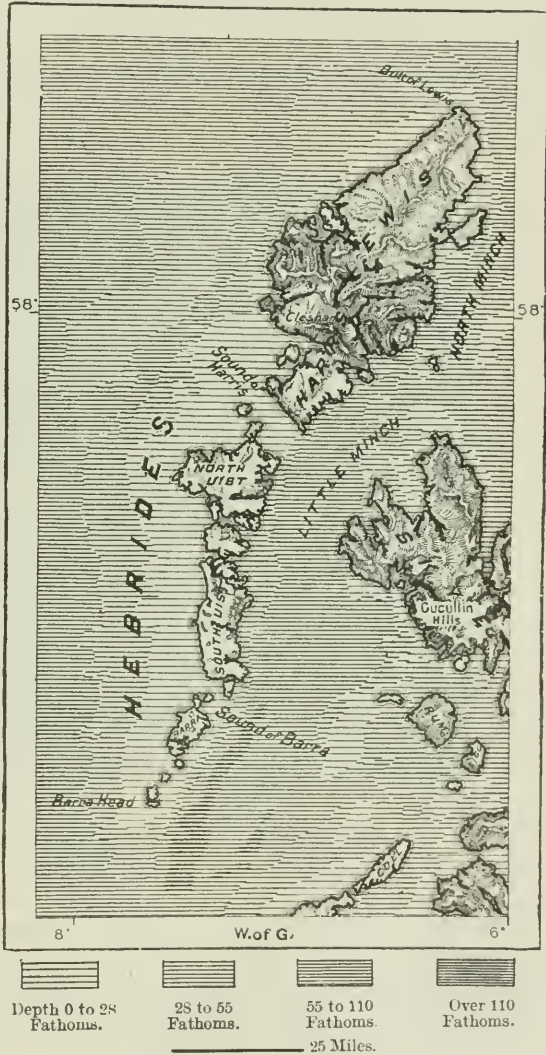
Several among these Western Islands must be looked upon as detached fragments of the mainland, from which they became separated through the formation of a marine valley, and which they resemble in geological structure. It was thus that Skye became an island. Its eastern promontory projects far into Loch Alsh, and Kyle Rhea, the narrow strait which connects that loch with the Sound of Sleat, is scarcely 500 yards wide. The mountains of Skye, rising in Scur-an-Gilleann, one of the Cuchullins, to a height of 3,220 feet, run in the same direction as the mountains of Inverness. But whilst Eastern Skye is mainly formed of metamorphosed Silurian rocks, its larger western portion is overspread with basalt. Skye is one of the most picturesque islands of the Hebrides, with serrated ridges, sheets of lava, cup-shaped caldrons, silvery cataracts and mountain lakes, and spar caverns. One of the

most remarkable curiosities of the island is the Quiraing (1,000 feet), near its northern cape. It consists of a turf-clad platform of basalt, standing like a table amongst gigantic columns of rock, for the most part inaccessible.

The Western, or Outer Hebrides, are separated from the mainland and its contiguous islands by the deep channel of the Minch, which sinks to a depth of 150 fathoms. From their northern promontory, the Butt of Lewis, to Barra

Fig. 171.—THE WESTERN ISLANDS.

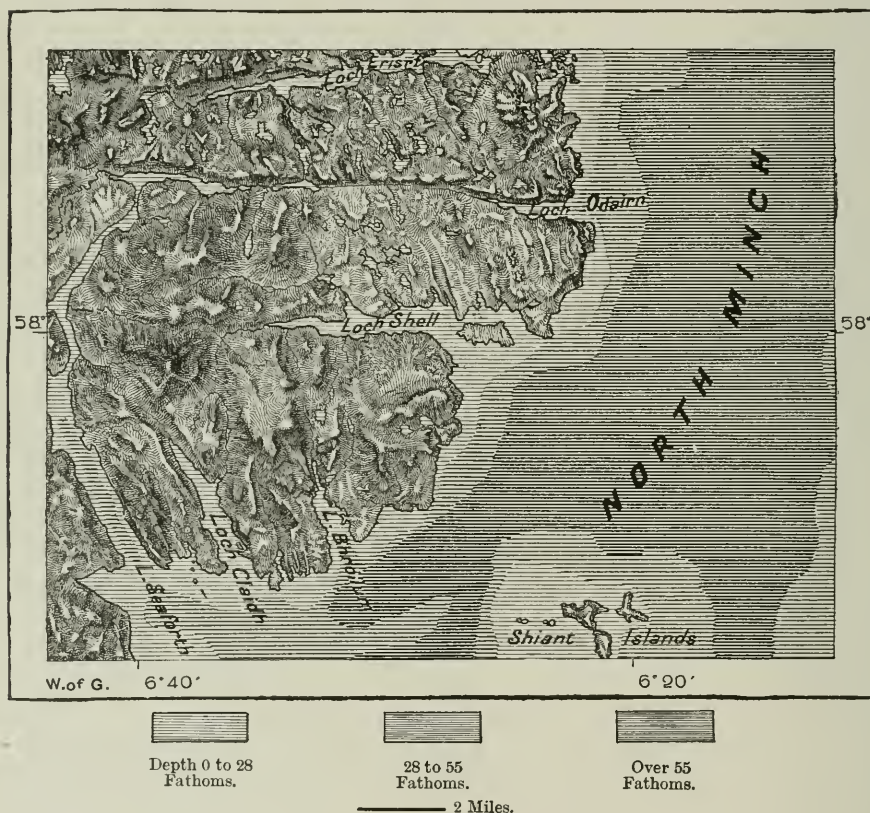
Scale 1 : 2,225,000.



Head, on the small island of Bernera, the development of this chain of gneissic islands is so regular that in the eyes of the inhabitants of Scotland there exists but one Long Island. This island, however, is made up of hundreds of fragments— islands, islets, rocks—most of which are inhabited, though the population is numerous only on Lewis and Harris (which jointly form the northern and largest island of the group), North Uist, South Uist, Benbecula, and Barra. Each of these fragments of Long Island has its hills, its Ben More, or “Big Mountain,” its lakes, peat bogs, lochs, and fishing ports. The traces of ancient glaciers are

Fig. 172.—LOCHS OF SOUTHERN LEWIS.

Scale 1 : 275,000.



visible throughout, and several parts of Lewis have evidently been planed down by them into a succession of ridges.*

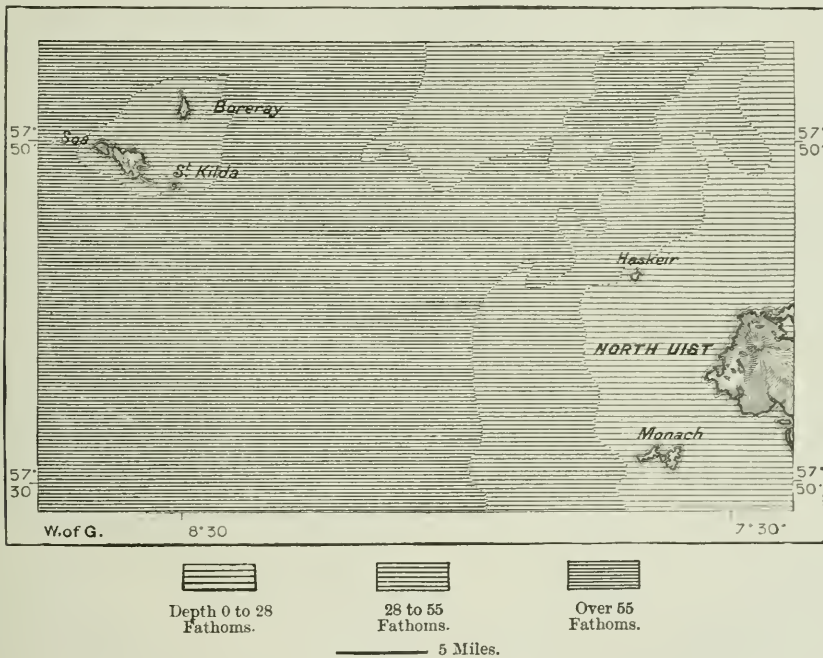
Two submarine ridges lie outside the Western Hebrides, in the open Atlantic, but they emerge only at two places, viz. in the Flannan Islands, or “Seven Hunters,” and in the miniature archipelago of Hirt, or Hirst, usually named St. Kilda. The largest island of this group is still inhabited, notwithstanding its remote situation, the small extent of its cultivable soil, and the difficulty of access. This lonely island, 50 miles to the west of Lewis, is formed almost wholly of steep

* The culminating summits are—Bhein Mhor (Ben More), in Lewis Forest, 1,750 feet; Clesham, in Harris, 2,662 feet; Ben More, of South Uist, 2,038 feet.

cliffs, rising to a height of 1,220 feet, and access is possible only through a cleft in the rocks.* Hirt is undoubtedly the most forsaken place in Europe, and its inhabitants can but rarely see from their prison home the indistinct contours of the nearest abode of man. St. Kilda, which vessels can approach only during the three months of summer, is looked upon even by the inhabitants of the Hebrides as an abode of misery, though, thanks to the tales of fishermen, what they state respecting it is mixed up with much that is fabulous. But the unanimous reports of travellers, confirmed by the register of births and deaths, prove that the nineteen families who inhabit the island are so largely influenced by the lonely life they lead, that the arrival of a vessel with sailors and passengers suffices to produce a general sickness, attended with cold in the head, amongst them.

Fig. 173.—ST. KILDA.

Scale 1 : 750,000.



This "eight days' sickness," or "boat cough," is dangerous, more especially in the case of the men, and when imported by a vessel coming from Harris, it not unfrequently terminates fatally.† Similarly, on several islands of the Pacific, a single stranger spreads around him an atmosphere of sickness. The handful of people living on St. Kilda have to undergo a hard struggle for existence. The children, before they can be considered safe, have to pass through a succession of fits—caused, in the opinion of medical men, by the peculiar food administered to them, for from the day of their birth they are made to swallow oil taken from the stomach of a petrel mixed with port wine. Out of every nine children born,

* J. Sands, "Out of the World, or Life in St. Kilda."

† John Morgan, "Diseases of St. Kilda," *British and Foreign Medical Review*.

five die in infancy;* but the birth rate is unusually high, and the population has not only not decreased since the middle of last century, but the island has even dispatched a few emigrants to Australia. The Hebrides likewise differ from the neighbouring mainland in their sanitary condition. It is asserted by medical men that natives of the Hebrides are not subject to consumption unless they quit their homes and imbibe the germs of the disease elsewhere. It is believed

Fig. 174.—STAFFA: VIEW TAKEN FROM THE TOP OF A CLIFF.



that this immunity is due to the acrid smoke of peat which they breathe in their confined cabins.

Igneous rock occurs only at a single spot on the island of Lewis,† but is abundant on the islands contiguous to the mainland. The finest columns of basalt may be seen on the small Eigg Island, to the south of Rum. The “Scur” of Eigg (1,272 feet) presents on its sea face a row of columns 470 feet in height.

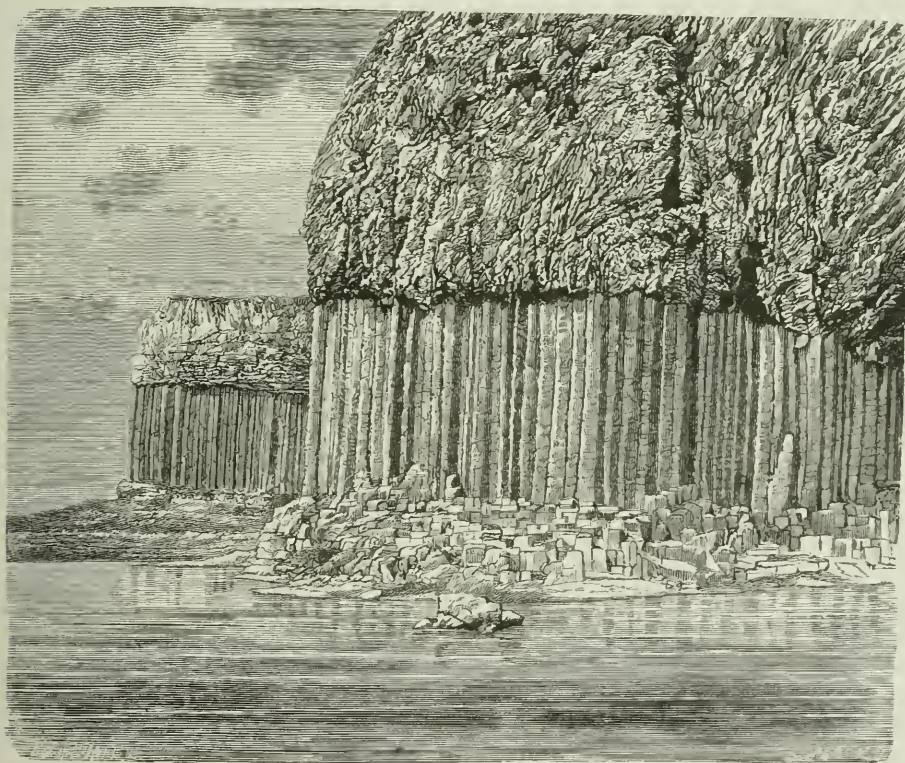
* Geo. Seton, “St. Kilda, Past and Present.”

† For the geology of Scotland see Geikie's elaborate Map, published in 1876.

and rising like a temple above a foundation of rock, in which are embedded the petrified remains of a forest of pines. The sands at the foot of this Scur occasionally give forth a long-drawn musical sound when walked upon—a phenomenon similar to what may be witnessed on some beaches of Pomerania, in the desert of Atacama, and on the slopes of Mount Sinai.*

The large island of Mull, separated by the Sound of Mull and the Firth of Lorne from the mainland of Argyll, is almost wholly formed of volcanic rocks, which occasionally rise in regular steps. Numerous rivulets, born in the interior of the island, and fed by its plentiful moisture, hasten towards the sea, and form foaming cataracts on their onward course. Ben More (3,172 feet), the great

Fig. 175.—THE EXTERIOR OF FINGAL'S CAVE.



mountain of the island, as well as the principal summits along the Sound of Mull, consists of trap; but the south-western arm of the island terminates in an enormous promontory of granite, the quarries on the face of which look like mere scratches when seen from afar. On the western side of Mull lies the famous island of Staffa, whose cave, discovered, as it were, by Sir Joseph Banks in 1772, has been dedicated by the admirers of Ossian to Fingal. This cavern deservedly ranks amongst the wonders of the world. The island rises to a height of about 150 feet. Its surface is covered with luxuriant grass, and on all sides it is bounded by cliffs of columnar basalt. On turning round a cape we suddenly

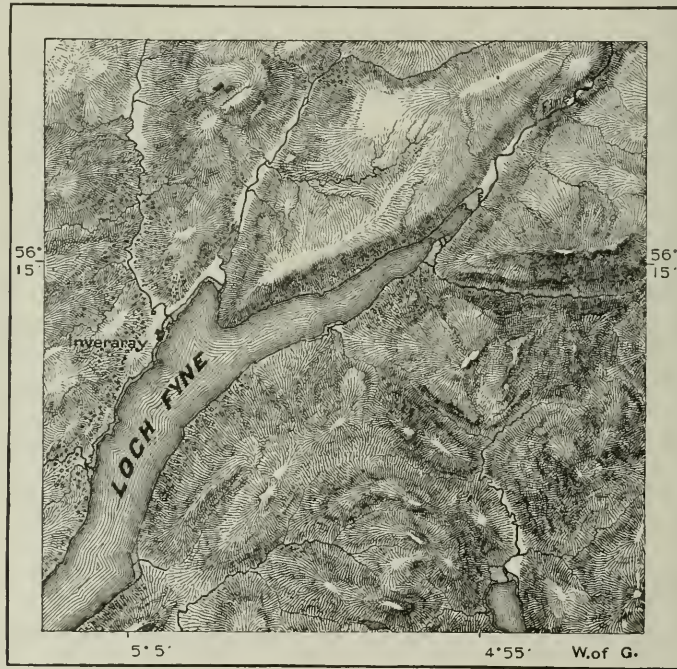
* Hugh Miller, "Summer Rambles among the Hebrides."

find ourselves in front of a "pillar'd vestibule" leading into a cavern, whose fretted vault is supported by columns of basalt. When the sea is tranquil, the billows, rolling over the lower pillars, urge their way up the receding sides of this great temple. The murmuring, moaning noises produced by succeeding surges in regular cadence account for the Gaelic name of the cave, which is *Llaimh Binse*, or "Cave of Music." But when the sea is lashed into fury the gentle music becomes a terrible turmoil, and the compressed air, rushing from the cave, produces a sound like thunder, which can be heard several miles off, on the island of Mull.

The rocks of Dubh Artach form the south-western extremity of the archipelago, of which Mull is the chief member. They, as well as the Skerryvore—or rather

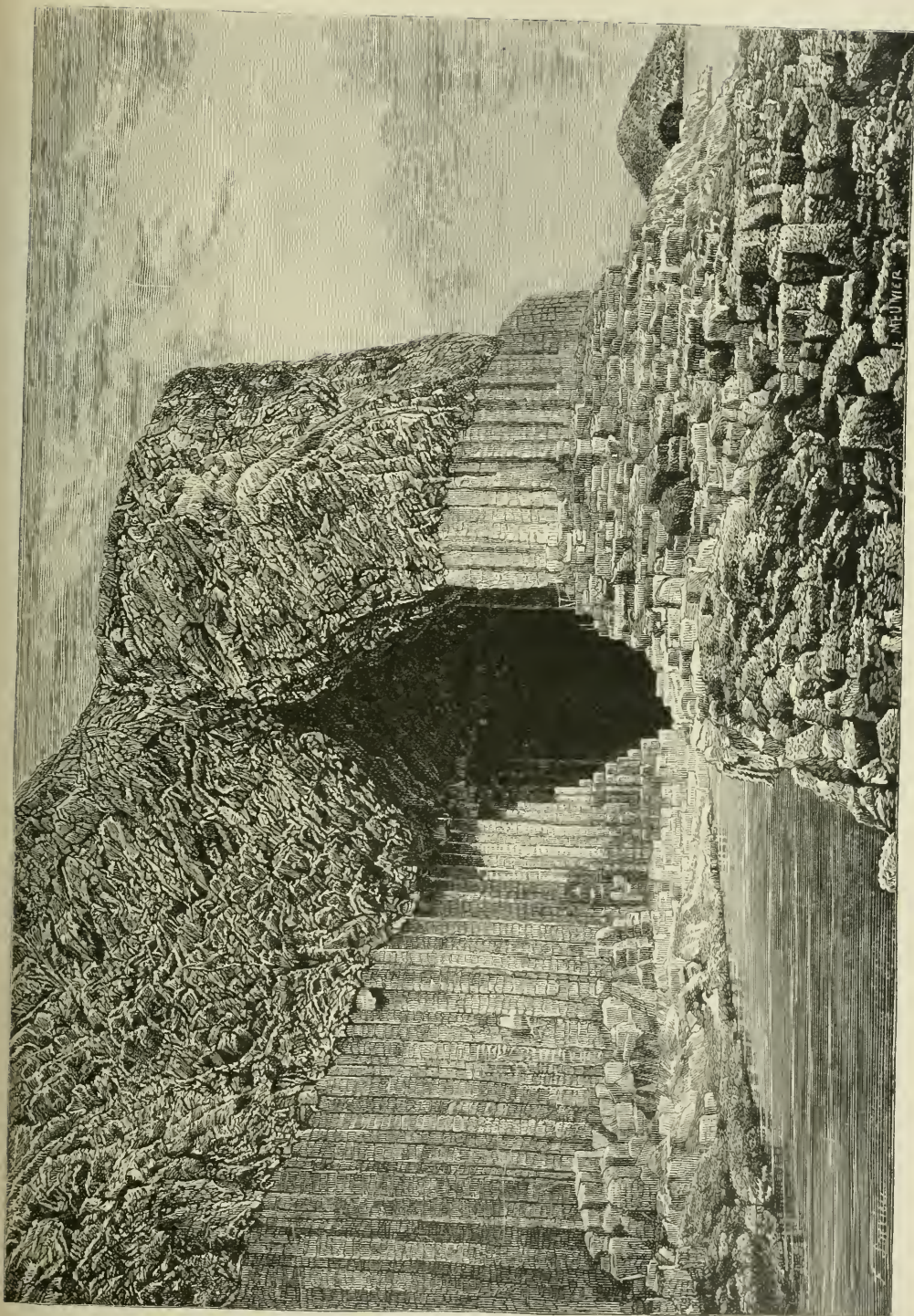
Fig. 176.—THE HEAD OF LOCH FYNE.

Scale 1 : 20,000.



Sgir More; that is, "Great Rocks"—rising upon a submarine plateau stretching away from the gneissic islands of Coll and Tiree, are pointed out from afar by a lofty lighthouse. The Tower of Skerryvore is a rival to the famous lighthouses of Eddystone and Bell Rock, and the difficulties over which its engineer, Alan Stevenson, has triumphed were, perhaps, even greater than in the case of the other two, as the power of the waves in these seas is sufficient to lift a block of stone weighing 42 tons.

To the south of the Firth of Lorne there extends another chain of islands, formed, like the neighbouring coast, of Silurian rocks. This chain includes



FINGAL'S CAVE, ISLE OF STAFFA.

Jura—or rather Diura; that is, “Stag Island” *—and Islay, the one covered with lofty mountains rising to a height of 2,566 feet, the other the most fertile and best cultivated of the Hebrides, and rich in metals. The narrow “sound” which separates these islands from the peninsula of Kintyre is navigable, but owing to its swift tidal currents it is dangerous to small vessels. Two of these currents meet between Jura and the small island of Scarba, producing a tide of double height. The passage of this strait is attended with peril when the tide changes, more especially if the wind blows in a direction contrary to its current and towards the rocks. At such times no vessel would venture to approach this fearful “race,” which the Gaels very appropriately call Coirebhreacain, or Corryvreckan; that is, “Caldron of the Sea.” The velocity of the current is variously estimated at 10 or 13 miles.† Of all the currents in the seas of Scotland that of Coirebhreacain is most dreaded; in its violence it is the equal of the more famous maelström amongst the Norwegian Lofoten.

We already know something of the character of the climate of Northern Scotland. Essentially maritime, even more so than that of Southern England, it is also very damp and of surprising equability. The atmosphere is nearly always saturated with moisture, at least on the western coast, where the clouds, arrested by the high mountains, almost incessantly descend in rain or snow, the latter, however, but rarely remaining long upon the ground. Rain falls at all seasons of the year, destroying the rocks and swelling the mosses of the bogs. Scotland is most emphatically a land of mists, through which the heroes of Ossian loom like fleeting shadows. In the songs of the bards Skye is the “Island of Clouds,” Mull the “Island of Gloom,” whilst the northern navigators knew the sea around the Orkneys as the Libersee, or “Viscous Ocean.” The Gaels have five elements, for to fire, water, earth, and air they add mist.

The great contrast between the long nights of winter and the long days of summer is compensated by its equability of temperature. Even in the Orkneys, in the fifty-ninth degree of latitude, mariners may reckon in summer upon a hundred successive days on which print may easily be read at midnight, whilst in winter there occurs an equal number of very short days followed by a long night, occasionally lit up by the aurora borealis. The winds are high, and storms frequent; but though the atmosphere be ever so much agitated, its temperature is nearly always the same. The mean annual temperature in the Scotch islands amounts to 45° Fahr., while that of winter is about 40° Fahr. The dark months pass away without frost; but the summers have no heat, and the year, as a whole, is, so to speak, of a neutral complexion.‡ Several southern plants requiring only moisture and mild winters flourish in Scotland, and on the margins of the lakes of Sutherland fuchsias grow in the open air. But in the Orkneys the heat of summer is not sufficient for most of our vegetables; trees do not grow spontaneously; and even the service-tree and ash succeed only under careful shelter of walls. But though the surface of the islands be barren and naked, the sea

* MacCulloch, “A Description of the Western Islands of Scotland.”

† *Athenæum*, 26th August, 1864.

‡ Charles Martins; Gast. de Saporta, *Revue des Deux-Mondes*, July 1st, 1871.

which surrounds them abounds in animal and vegetable life. The margins of beaches and rocks are covered with fucus, harbouring a multitude of molluscs and other animals, for the most part of a boreal type; several kinds of seaweed, such as *Rodomenia palmata* and *Iridaea edulis*, form part, under the name of "dulse," of the alimentary resources of the country. Loch Fyne, one of the ramifications of the Firth of Clyde, is famous for its herring fisheries, whilst nearly every river yields salmon. Several varieties of this fish are of American origin. Pearls likewise are fished up from the Scottish rivers, and have become fashionable. Altogether the produce of the fisheries amounts to at least £5,000,000 sterling per annum.

The marine fauna of the Shetland Islands is Norwegian rather than British. The same fish are caught there as near the Norwegian Lofoten. When, in the seventeenth and eighteenth centuries, Maassluis and Vlaardingen had attained the height of their prosperity, the sounds of Shetland were annually frequented by 800, 1,000, 1,500, or even more Dutch "busses" of 80 tons each, and escorted by twenty men-of-war. This Dutch fishing fleet met in Bressay Sound, off Lerwick, which became for the time one of the most bustling places in Europe. Swift "doggers" carried the first herrings taken to Holland. At the present day the fisheries in these seas are carried on almost exclusively by the British.

All the four-footed animals of England are met with in Scotland, including even the wild cat, which, however, has become scarce in the Highlands. About the middle of the twelfth century the land fauna of Northern Scotland possessed a feature in common with Scandinavia, which is now wanting. At that time the reindeer still roamed through the forests of Caithness, where reindeer moss abounds even now, and according to the sagas the Earls of Orkney annually crossed the sea to hunt that animal and the red deer. The great Scotch landowners still keep in their parks wild cattle which some claim to be representatives of the aurochs, but which zoologists declare to be merely a variety of our oxen. The stag is at present the only large animal indigenous to the Highlands, and though Lithuanian aurochs, elks, American buffaloes, reindeer, and wapiti were introduced into the parks, and readily adapted themselves to the climate, most of them, owing to their viciousness, had to be killed. The capercailzie, a Swedish bird introduced in 1837, has become common on the moors. The beaver, an ancient inhabitant of the country, has been imported into Bute, where it flourishes.

The fauna grows poorer in species with a restriction of area; it is less varied in Great Britain than on the continent, and suffers a further reduction in the Orkneys and Hebrides. Many animals found on the mainland have never crossed the sea into the neighbouring islands. Nowhere in these latter do we meet with molehills, indicating the existence of an underground population. Rabbits are unknown, as also were hares until recently. They have, however, become one of the chief resources of the Orkneys, compensating in some measure for the cessation in the export of seaweeds, which until 1832 were used in the manufacture of glass.* The white hare has been introduced by sportsmen into Lewis, and when first seen excited the fears of the natives, who took it for a phantom. St. Kilda has only

* D. Gorrie, "Summers and Winters in the Orkneys."

one wild mammal—the mouse ; even rats have not yet appeared there.* Various animals imported into the islands have grown smaller, owing to the influence of their surroundings. Amongst these are the spirited and indefatigable Shetland ponies, or shelties. Several birds, including the partridge, have, like rabbits and foxes, stopped short at the straits which separate the Scottish main from the Western Isles. Sea-birds, however, abound ; for the rocky coasts of the Hebrides, Orkneys, and Shetland Islands present the same advantages as breeding grounds as do the cliffs of the mainland. In species no less than in individuals they are prodigiously numerous, and the solan geese which perch on the rocks of St. Kilda have been estimated at 200,000.† Several sea-birds, including the common fulmar (*Procellaria glacialis*), breed only on certain islands. One species of bird has undoubtedly died out : we mean the great auk (*Alca impennis*) of the Orkneys, which has not been seen since 1824. Amongst the marvels of the islands, and more especially of the Orkneys, writers of the Middle Ages, and even zoologists of the last century, enumerate a curious shell which grows into a tree, and bears ducks and geese instead of fruit. This strange fable may be traced even through the earliest volumes of the *Philosophical Transactions*, and Linnæus himself alludes to it when he calls a species of cirripede an *anatifer*, or “ duck-bearer.”

THE PEOPLE.

WHO were the earliest inhabitants of the Scottish Highlands ? Of what race were the Picts, who formerly inhabited the country, and over whom even the Romans could not triumph ? Were they pure Celts, or had their blood already mingled with that of Scandinavians ? It is usually believed that the Picts had separated themselves from the other Britons at a very early age, and that their idioms differed much more from the dialects spoken in Gaul than did Cymraig. They originally inhabited, perhaps, the whole of Great Britain, and were pushed to the northward by the Britons, who in turn were displaced by Romans and Saxons.

Numerous stone monuments, known as Picts’ “ houses,” or *weems*, and invariably consisting of a chamber or centre passage surrounded by smaller apartments, are attributed to these aborigines. The mainland, and to a great extent the islands, abound in *broughs*, or *borgs* ; that is, towers of defence, resembling, at least externally, the *nuraghe* of Sardinia. On the Shetland Islands there are seventy-five of these towers, and in the Orkneys seventy. Petrie, who has examined forty of them, looks upon them as fortified dwelling-houses. Their circular walls are 12 feet and more in thickness ; their original height is not known, for every one of them has reached us in a partial state of demolition. Pestles for crushing corn, stone lamps, and vessels made of the bone of whales testify to the rudimentary state of civilisation which the inhabitants had attained. The Brough of Mousa, to the south of Lerwick, bulges out near its base, probably to prevent

* Macaulay, “ A Voyage to and History of St. Kilda.”

† G. Seton, “ St. Kilda, Past and Present.”

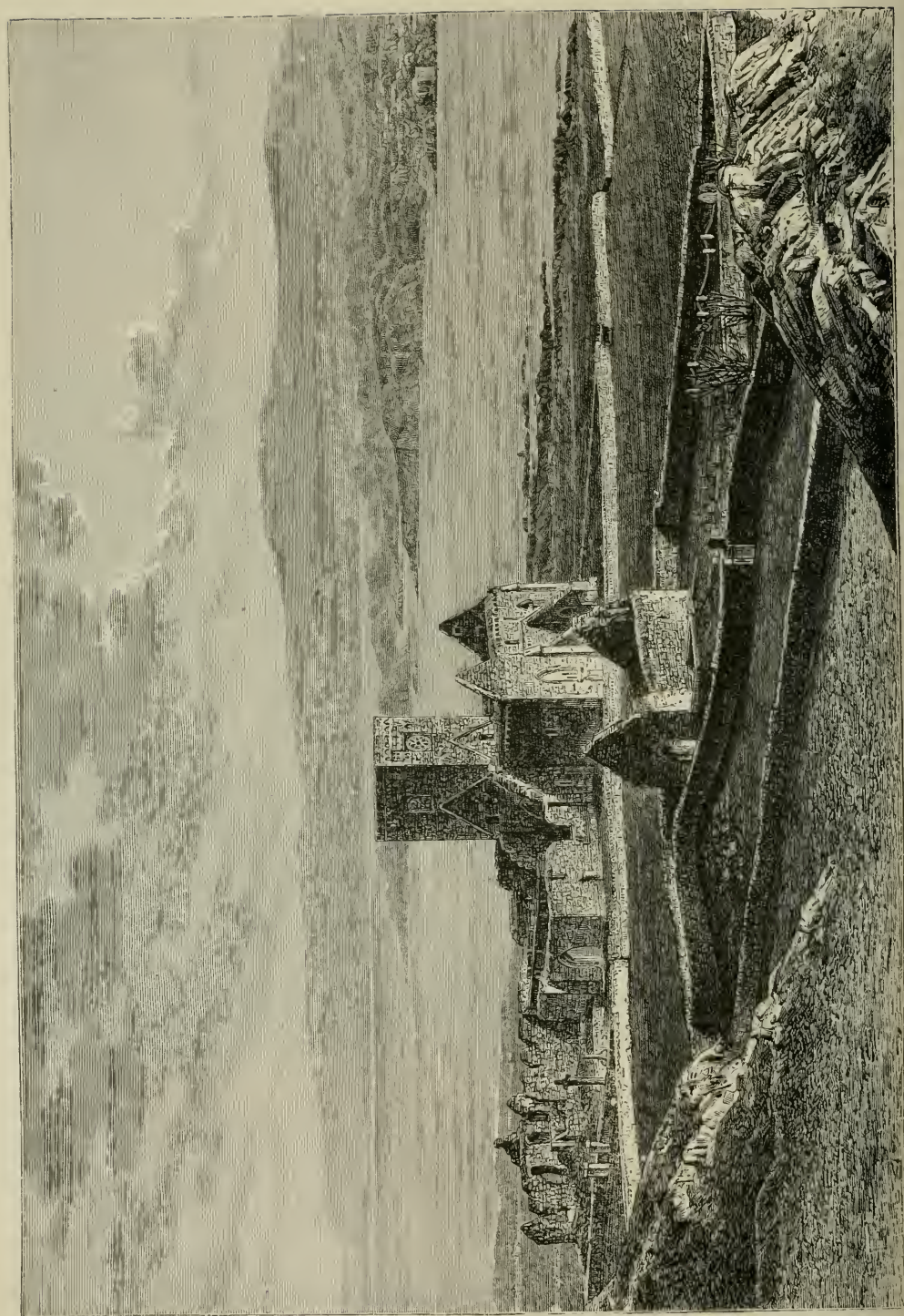
the use of scaling-ladders, and recesses occur at regular intervals on the inside of the wall. Cromlechs, cairns, standing stones, symbolical sculptures, circles of stones, pile dwellings, and vitrified forts are found in several localities both on the mainland and the islands. Primitive monuments of this kind form one of the most salient landscape features in the Orkneys. On Pomona there is a district of several square miles in area which still abounds in prehistoric monuments of every description, although many stones have been carried away by the neighbouring farmers. In the tumulus of Meashow, opened in 1861, were discovered over 900 Runic inscriptions, and the carved images of fanciful animals. On the same island are the standing stones of Stennis; and on Lewis, 12 miles to the west of

Fig. 177.—THE STANDING STONES OF STENNIS.



Stornoway, the "grey stones of Callernish." These latter, forty-eight in number, are also known as Tuirsachan, or "Field of Mourning," and they still form a perfect circle, partly buried in peat, which has grown to a height of from 6 to 12 feet around them.* We know that these constructions belong to different ages, and that now and then the stones raised by the earliest builders were added to by their successors. Christian inscriptions in oghams and runes in characters not older, according to Münch, than the beginning of the twelfth century, have been discovered on these monuments. At Newton, in Aberdeenshire, there is a stone inscribed in curiously shaped letters, not yet deciphered.

* Wilson, "Prehistoric Annals of Scotland."



RUINS OF IONA CATHEDRAL AND ORAN'S CHAPEL.

Notwithstanding a change of religion, these sacred places of the ancient inhabitants still attract pilgrims. On South Uist the people until recently walked in procession around a huge pile of rocks, turning thrice in following the apparent path of the sun. The small island of Iona, at the western extremity of Mull, is one of those places which have been held sacred for generations. Various stone monuments prove that this spot was held in veneration at the dawn of history, and this probably induced the Irish apostle, St. Columba, to found here a monastery—the “light of the western world”—which soon became the most famous in Great Britain. Hence went forth those ascetic Culdees whom the jealousy of the clergy caused to disappear in the course of the thirteenth century.* In the ruined ecclesiastical buildings of this islet are buried more than sixty Kings of Scotland, Ireland, and the Hebrides, the last interred here having been Macbeth. A prophecy says that one day the whole earth will be swallowed up by a deluge, with the exception of Iona. There was a time when this venerated island was interdicted to women, as Mount Athos is at the present day. Not far from the church lay the “black stones,” thus called on account of the malediction attaching to him who forswore himself by their side. It was here that the “Lords of the Isles,” kneeling on the ground with their hands raised to heaven, were bound to swear to maintain intact the rights of their vassals.† Among the heaps of rocks piled up on the beach, it is said by monks in expiation of their trespasses, are found fine fragments of granite, porphyry, and serpentine, which the inhabitants employ Scotch workmen to cut and polish, in order that they may sell them as amulets to their visitors. Formerly these stones were looked upon throughout the Hebrides as the most efficacious medicine against sorcery; and when about to be married a bridegroom, to insure happiness, placed a stone of Iona upon his bare left foot.‡

The Scotch Highlanders are more or less mixed with Scandinavians, for the Northmen, who for centuries held possession of the Orkneys, gained a footing also upon the mainland, where they founded numerous colonies. Scandinavian family names are frequent in the Orkneys, but the type of the inhabitants is nevertheless Scotch.§ The geographical nomenclature of the Shetland Isles is wholly Norwegian. The names of farms terminate in *seter* or *ster*, and those of hills in *hoy* or *hole*. In 1820 the sword dance of the ancient Norwegians might still be witnessed on one of the islands, and according to Gifford,|| Norse was spoken in a few families as recently as 1786. Sutherland clearly formed part of the old domain of the Northmen. That county lies at the northern extremity of Scotland; but to the inhabitants of the Orkneys it was a Southern land, and the name which they gave to it has survived to our own time.

A few Scandinavian colonies on the mainland have retained their distinct character. As an instance we may mention the village of Ness on Lewis, the

* Jameson, “History of the Culdees.”

† Forbes Leslie, “Early Races of Scotland.”

‡ Mercey, *Revue des Deux-Mondes*, September, 1838.

§ Hugh Miller, “Footprints of the Creator.”

|| “Historical Description of Zetland.”

inhabitants of which are distinguished for their enterprise, presenting a singular contrast to the sluggishness of their Gaelic neighbours. The descendants of these hostile races have, like oil and water, long refused to mingle. It would nevertheless be next to impossible to define the boundaries between the various races throughout the country. Language certainly would prove no safe guide, for many of the Gaels have given up their language and speak English. Out of 3,500,000 Scotchmen only 250,000 are able to express themselves

Fig. 178.—LINGUISTIC MAP OF SCOTLAND.

According to E. G. Ravenstein.



in Gaelic, and of these only 49,000 are ignorant of English.* As to the Scandinavians, not one amongst their descendants now speaks Old Norse. The greater number of them speak English, but many, too, have adopted Gaelic. In most of the islands the names of places are Danish, although Gaelic has for centuries been the spoken language. Even in St. Kilda, remote as is its situation, an intermingling of Gaels and Northmen has been recognised.† The use of Celtic was discon-

* E. G. Ravenstein, "On the Celtic Languages in the British Isles."

† Sands, "Out of the World, or Life in St. Kilda."

tinued at the court of Scotland about the middle of the eleventh century, and is doomed to disappear. Far poorer in its literature and less cultivated than Welsh, its domain diminishes with every decade, for English is now almost universally spoken in the towns, and the Highland valleys are becoming depopulated, or invaded by Saxon sportsmen and graziers. If Caledonia really stands for *Gael-Dun*, or "Mountain of the Gael," then its limits are becoming narrower every time the meshes of the network of railroads are drawn tighter. But though Celtic may disappear as a spoken language, the geographical nomenclature of Scotland will for all time bear witness to its ancient domination. Those acquainted with Gaelic may obtain a tolerably correct notion of the relief of the ground by merely studying the names upon a map. Names like *ben*, *carn*, *carr*, *carragh*, *cnoc*, *creag*, *cruach*, *dun*, *mam*, *meal*, *monadh*, *squir*, *sith*, *sithean*, *stob*, *stuc*, *tolm*, *torr*, *tullich*, and *sliabh* will suggest to their minds variously shaped mountains; *eye*, *i*, and *innis* denote islands; *linne* and *loch* represent lakes or gulfs; *abh*, *abhuinn*, *uisge*, *esk*, and *buinne* stand for rivers or torrents. *Inver* in the west, and *Aber* in the east, indicate the mouths of rivers. The name *Albainn*, *Albeinn*, or *Albion*, by which the Gaels were formerly designated, is now applied to all Britain. The Gaelic bards spoke of their fellow-countrymen by preference as *Albannaich*, or "Mountaineers."* The *Albannaich* of the Grampians and the Albanians of the Pindus are thus known by a similar name, having in all probability the same meaning.

The translation of one of John Knox's religious works was the first book printed in Gaelic, and thus, as in Wales, the Reformation conferred upon the language of the people an importance which it had not possessed before. But whilst in Wales religious zeal, through its manifestations in the pulpit and the press, has contributed in a large measure to keep alive the native idiom, the division of the Highlanders into Catholics and Protestants has resulted in a diminution of the collective patriotism of the people, as it reveals itself in language. Catholics are numerous in the county of Inverness, and it merely depended upon the chief of a clan whether his followers remained true to the old faith or embraced the new. Canna and Eigg are the only Hebrides the inhabitants of which remained Catholics. Those of the larger island of Rum, it is said, hesitated what to do, when the chief of the MacLeods, armed with a yellow cudgel, threw himself in the way of a procession marching in the direction of the Romish church, and drove the faithful to the temple which he patronised. Hence Protestantism on that island is known to the present day as the religion of the yellow cudgel.† But notwithstanding these changes of religion, many superstitions survive amongst the people. In Lewis "stone" and "church" are synonymous terms, as they were in the time when all religious ceremonies were performed around sacred megaliths.‡

The fame of the Highlanders had been sung by poets and novelists, until they came to be looked upon as typical for bravery, loyalty, and all manly virtues

* Forbes Leslie, "Early Races of Scotland."

† Dr. Johnson, "Tour in the Western Hebrides."

‡ Anderson Smith, "Lewisiana."

The soldiers, in their strange and showy garb, have so frequently won distinction upon the field of battle that all their panegyrists said about their native virtues was implicitly believed; and on the faith of poets we admired their pipers, the successors of the ancient bards, who accompanied their melancholy chants on the harp. In reality, however, the Highlanders, until recently, were warlike herdsmen, as the Montenegrins, Mirdits, and Albanians are even now, always at enmity with their neighbours. It was only after forts had been built at the mouths of the valleys, and military roads constructed through their territories, that they were reduced to submission. The members of each family were closely united, and, like American Redskins, they had their war-cries, badges, and distinctly patterned tartans. The people were thus split up into about forty clans, or, including the Lowland families, into about one hundred, and several of these clans consisted of more than 10,000 individuals.* The members of each clan, though sometimes only cousins a hundred times removed, all bore the same name, and they fought and worked together. The land was originally held in common, being periodically divided amongst the clan. The honour of the tribe was dear to every one of its individual members, and an injury done to one amongst them was avenged by the entire community. When the Kings of Scotland had to complain of a Highland chief, they attacked his clan, for they well knew that every member of it would embrace the cause of the chief. There existed no courts of justice in the Highlands, but blood was spilt for blood. Various monuments recall such acts of savage vengeance, and as recently as 1812 a Highland family set up seven grinning heads as a trophy to commemorate a sevenfold murder committed by its ancestors. A cavern on Eigg Island is strewn with human bones, the relics of the ancient inhabitants of the island, 200 in number, who are said to have been suffocated within the cavern by a neighbouring chief, MacLeod, in retaliation for some private injury.†

As long as every member of the community possessed a share in the land Scotland was spared the struggle between rich and poor. But by the close of the eighteenth century the poorer members of the clan, though still claiming cousinship with their chiefs, had lost all proprietary rights in the land, and the lairds, when remonstrated with by the clan, responded in the words of the device adopted by the Earls of Orkney, "*Sic fuit, est, et erit!*" They were even then able to drive away the ancient inhabitants from the plots of land they occupied, in order that they might transform them into pasturing or shooting grounds. Several landlords even burnt down the cabins of their poor "cousins," thus compelling them to leave the country. Between 1811 and 1820, 15,000 tenants were thus chased from the estates of the Duchess of Stafford. Entire villages were given up to the flames, and on a single night 300 houses might have been seen afire. Nearly the whole population of four parishes was in this way driven from its homes. Since the middle of the century about 1,000,000 acres in the Highlands have been cleared of human beings and sheep to be converted into shooting

* Principal Highland clans in 1863:—MacGregors, 36,000; MacKenzies, 21,000; MacLeans, 16,000; MacLeods, 14,000; MacIntoshes, 11,000; MacDonalds, 10,000.

† Hugh Miller, "*Cruise of the Betsy.*"

grounds.* Thus, contrary to what may be usually witnessed in civilised countries, the Highland valleys are returning to a state of nature, and wild beasts taking the place of domesticated animals. The country, formerly almost bare of trees, has been largely planted, and from Black Mount in Argyllshire to Marr Forest in Aberdeen there now extends an almost unbroken belt of verdure. Already the shooting grounds cover over 2,000,000 acres, and they are continually extending. Scotland has emphatically become a sporting country, and many a large estate is managed as a shooting ground, that proving more profitable to its proprietor than would its cultivation. There are not wanting sportsmen willing to pay £400 for a salmon stream, £1,000 for the right of shooting over a moor, or £4,000 for a deer park. With these rents a salmon may cost £8, and a stag £40.†

Scotland, even more than England, is a land of wide demesnes. Twenty-one individuals share between them the third of the kingdom, 70 the half, and 1,700 nine-tenths of it. The Duke of Sutherland alone owns about the fifteenth part of Scotland, including nearly the whole county from which he derives his title. Domains of such vast extent cannot be properly cultivated, and heaths and swamps which would repay the labour bestowed upon them by peasant proprietors are allowed by their wealthy owners to remain in a state of nature.

In the Orkneys a portion of the land is still owned by *odallers*, or peasant proprietors; but the Shetland Islands and several of the Hebrides, including Lewis, the largest amongst them, belong to a single proprietor, who thus disposes indirectly of the lives of the inhabitants, whom he can compel to abandon their homes whenever it suits his interests. Several islands, such as Barra and Rum, which formerly supported a considerable population, have in this way become almost deserts; and amongst the inhabitants left behind there are even now many who live in a state of extreme poverty, who look upon *carrageen*, or Iceland moss, as a luxury, and who are dependent upon seaweeds and fish for their daily sustenance. Owing to the inferiority of the food, dyspepsia is a common complaint, and certain physicians declare that the gift of "second sight," which plays so prominent a part in the history of the Highlanders, is traceable to a disorder of the organs of digestion. The villages of Lewis are perhaps unique of their kind in Europe. The inhabitants gather the stones embedded in the peaty soil to construct rough concentric walls, filling the space between them with earth and gravel. A scaffolding made of old oars and boughs supports a roof covered with earth and peat, leaving a wide ledge on the top of the circular wall, upon which vegetation soon springs up, and which becomes the favourite promenade and playground of children, dogs, and sheep. A single door gives access to this unshapely abode, within which a peat fire is kept burning throughout the year, in order that the damp which perpetually penetrates through the wall and roof may evaporate. Horses, cows, and sheep, all of diminutive stature, owing to their want of nourishment, occupy one extremity of this den, while the fowls roost by the side of the human inhabitants, or perch near the hole left for the escape of the smoke. To strangers

* Hugh Miller, "Sutherland as it Was and Is."

† In 1877 2,060 shooting grounds in Scotland were let for £600,000. (Official Journal, November 16th, 1877.)

now a small village on the road leading over the Ochills, is interesting to archaeologists on account of its round tower. Crossing the Lower Earn at the village of *Bridge of Earn*, a rival of Bridge of Allan, we soon reach *Perth*, formerly a Roman station, afterwards the capital of Scotland, and still a town of considerable note. Seated at the head of the navigation of the Tay, and in the gorge which presented the only easy means of communication between Fife and the fertile Strathmore, its geographical position is admirable. In our own days Perth has become a manufacturing town, with flax-mills, bleaching and dye works, woollen factories, glass houses, and engineering shops, but the charms of its environs are as great as ever. Scone Palace, a modern mansion in the neighbourhood, stands on the site of a palace of the Kings of Scotland. The famous stone on which the Scotch monarchs were crowned was kept in Scone Abbey, now in ruins, until Edward I. transferred it to Westminster Abbey.

Glen Almond joins the Tay above Perth. Within it lie the manufacturing village of *Methven*, and Trinity College for the education of clergymen of the Episcopal Church of Scotland. Continuing up the winding Tay, we pass *Stanley*, with its cotton-mill; obtain a glimpse of *Dunsinane*, where Macbeth (1056) lost the battle which cost him his throne; and reach the mouth of the Isla, which flows through a part of Strathmore, and is fed by the Ericht and other rivers descending from the Highlands. *Blairgowrie*, *Cupar-Angus*, and *Alyth*, the only towns of this district, are engaged in the linen trade.

Dunkeld, beautifully seated on the Tay, enclosed by trees, above which peep forth the ruins of its noble cathedral, lies on the threshold of the Highlands, not far beyond the boundary which separates the red sandstone from the Silurian slates. Near it are Birnam Wood and the newly planted grounds of the Duke of Athol. Seven miles above it, at *Logierait*, the Tay receives the tribute of the Tummel. The Tay rises to the south-west, at the foot of Ben Lui (3,708 feet), and successively flows through Loch Dochart—to the south of which Ben More (3,818 feet) raises its head—and Loch Tay, by the foot of gloomy Ben Lawers (3,984 feet). The district drained by its upper course is known as Breadalbane, whose lordly owner has a princely seat at Taymouth Castle, at the foot of Loch Tay. In one of its wildest recesses are the lead mines of *Tyndrum*. The Tummel, after having received the tribute of Lochs Luydan and Errocht, flows through Glen Garroch, purifying its floods in Lochs Rannoch and Tummel, and forms an attractive waterfall before its junction with the Garry. This latter is the principal river of Athol. A short distance above the confluence it forces itself a passage through the famous gorge of Killiecrankie, above which the Highland clans, in 1689, inflicted so severe a defeat upon the royal forces. *Blair-Athol*, at the junction of Glen Tilt with the Upper Glen Garry, rises in the midst of the wildest mountain scenery. Two roads diverge from it: one leads up gloomy Glen Tilt, and past Cairn Gower (3,671 feet) into Aberdeenshire; the other, accompanied by a railway, continues up Glen Garry, and crosses the Pass of Drumouchter into Inverness-shire. In the great “forest” of Athol 130,000 acres are set apart for grouse and deer-stalking.

The river Earn rises in Loch Earn, and joins the Tay below Perth. In its lower valley, but at some distance from the river, is *Auchterarder*. Higher up, and surrounded by beautifully wooded hills, is *Crieff*, a small town engaged in the cotton, linen, and woollen trades, with an obelisk in honour of Sir David Baird. The village of *Comrie*, on the line of division between the old red sandstone and the Silurian rocks, is stated to suffer frequently from earthquakes.

The south-western portion of Perthshire is drained by the Forth and its tributary Teith. The Forth rises at the eastern foot of Ben Lomond (3,123 feet), and in its lower course washes the district of Menteith, with a beautiful lake embosomed in wooded hills. At Stirling it is joined by the Allan, flowing through a strath of the same name, in which is seated the picturesque town of *Dunblane*, with the remains of a fine cathedral and mineral springs, which make it a rival of the Stirlingshire town of Bridge of Allan, lower down on the same river. The Teith flows past the small town of *Doune*, near which, at *Deanston*, is a large cotton-mill. At *Callender* the wild gorge of the Trossachs, which leads up to Loch Katrine, whence Glasgow draws its water, and the entrance to which is guarded by Ben Ledi (3,009 feet), branches off to the right, whilst Strath Ire comes down from the northward. Following it we reach *Balquhiddy*, the burial-place of Rob Roy, and the braes rendered famous by his exploits.

There still remains to be noticed a small detached portion of Perthshire on the Firth of Forth, within which lie the small port of *Kincardine* and the fishing village of *Culross*, with the ruins of an abbey.

FORFARSHIRE, or ANGUS, is bounded on the north by the Binnchinnin Mountains, which are a section of the Grampians, and extend from Glas Miel (3,502 feet) to Mount Battock (2,554 feet). The southern slope of this range, which is furrowed by Glen Isla, Glen Esk, and Glen Mark, is known as the Braes of Angus, and abuts upon the fertile Strathmore, which occupies the centre of the county, and is separated from the Firth of Tay and the North Sea by the Sidlaw Hills (1,134 feet).

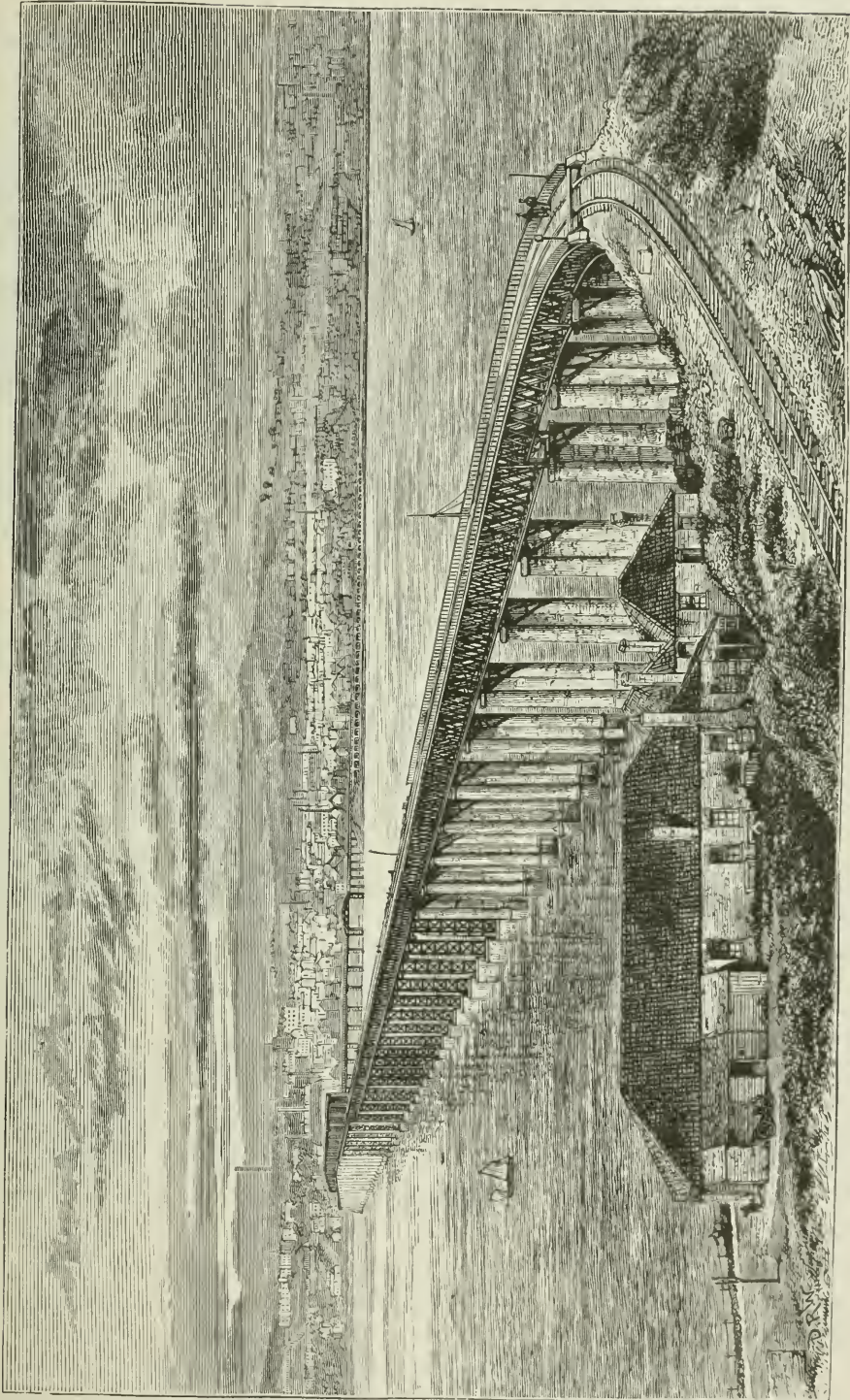
Dundee extends for several miles along the northern shore of the Tay, here nearly 2 miles in width, which did not prevent our engineers from throwing a railway bridge across it. Unfortunately, during a severe gale in December, 1879, the structure was precipitated into the Tay, together with a railway train hastening across it at the time. Dundee is an ancient city, which has been frequently besieged and taken. It was the first town in Scotland to sever its connection with Rome, and the religious ardour of its citizens converted it into a second Geneva. It is the most populous town in Northern Scotland, and the first in the United Kingdom for flax, jute, and hemp spinning and weaving, its factories in these branches alone employing more than 50,000 operatives. But, in addition to this, there are engineering works, ship-yards, and other industrial factories, and 200,000 cwts. of marmalade are made every year. For the last century the mariners of Dundee have pursued the high-sea fisheries with varying success, but on the whole not without profit, for at the present day they almost monopolize the whale fisheries in Baffin's Bay and the seal fisheries in the Greenland Sea. The



LOCH KATRINE—ELLEN'S ISLAND, AS SEEN FROM THE SILVER STRAND.

commerce of Dundee is commensurate with its industry, and nearly all the raw

Fig. 180.—THE TAY BRIDGE AND DUNDEE (1878).



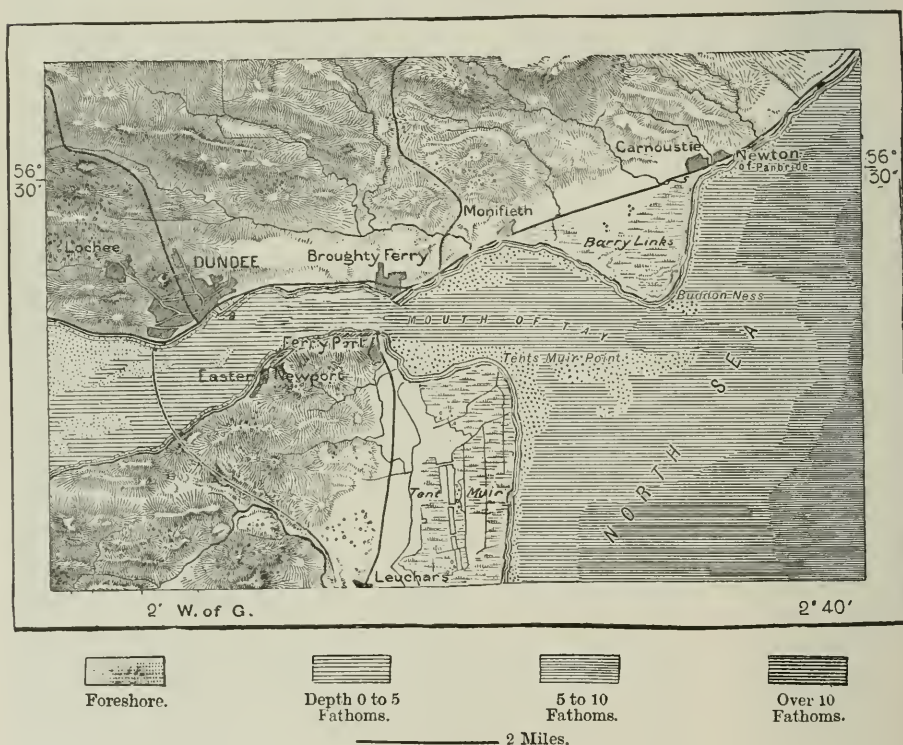
materials consumed in its numerous factories are imported in Dundee bottoms.

Broughty Ferry, at the mouth of the Tay, is an outport of Dundee, with the marine villas of many of its merchants. At a distance of 12 miles to the east of it, on a lonely rock, stands the Bell Rock Lighthouse.

Carnoustie is merely a favourite watering-place, but *Arbroath*, though its harbour is small, is a port of some importance, and manufactures canvas and sack-ing. It was famous in former times for its abbey, of which only ruins now exist. *Montrose*, on a sandy peninsula that almost shuts off from the sea the shallow bay into which the Southern Esk pours its waters, is a town of considerable commerce, largely engaged in the linen trade, the manufacture of starch and

Fig. 181.—DUNDEE AND THE MOUTH OF THE TAY.

Scale 1 : 250,000.

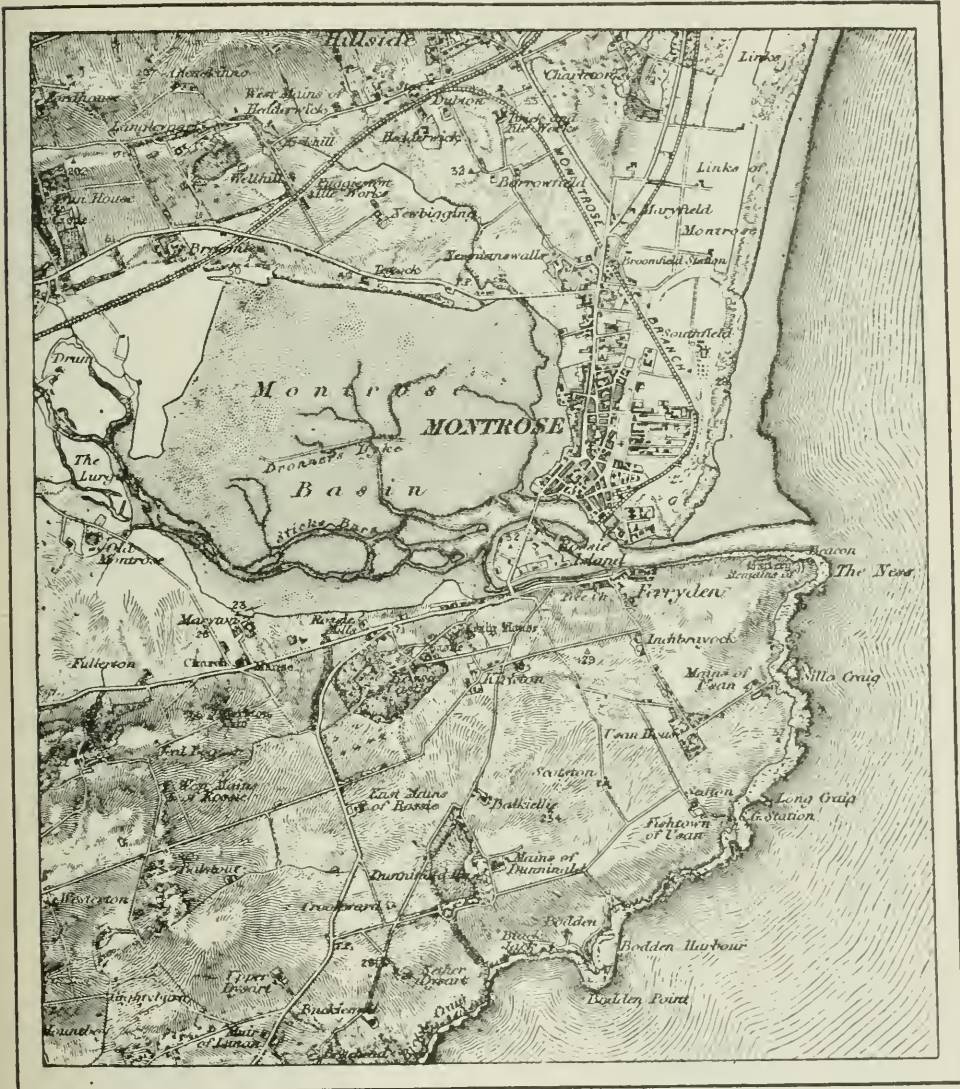


candles, and the building of ships. *Brechin*, on the Esk, is likewise noted for its linen manufacture, in addition to which there are nurseries, distilleries, paper-mills, and freestone quarries. By the side of the ancient cathedral, sadly disfigured by modern restorers, stands a large round tower. *Forfar*, a fine old town in the centre of Strathmore, is the county town. Like its neighbour *Kirriemuir*, it is engaged in the linen trade. Near these towns is the magnificent baronial castle of Glamis.

KINCARDINE, or MEARNS, extends from the Southern Esk to the Dee, and is in part occupied by the northern extremity of Strathmore, which reaches the sea at the town of *Stonehaven*, the harbour of which is formed by the mouth of the Carron.

Dunnottar Castle stands on a bold porphyritic rock to the south. *Findon* (noted for its haddocks), *Bervie*, and *Johnshaven* are mere fishing villages. The principal villages in the interior of the county are *Fordoun* and *Arbuthnot*, both with mineral

Fig. 182.—MONTROSE.
From the Ordnance Map. Scale 1 : 63,360.



1 Mile.

wells; *Kincardine*, the old county town; *Laurencekirk*; and *Marykirk*, with a Catholic college.

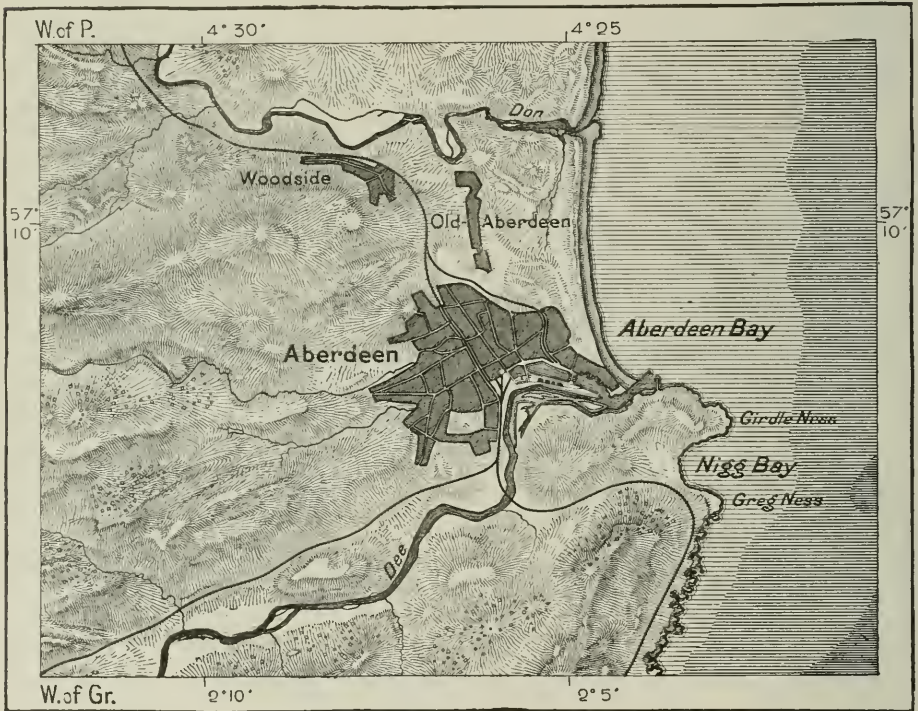
ABERDEENSHIRE extends from the mouth of the Dee to that of the Doveran, and is shut in, on the south and west, by bold spurs of the Grampians. It includes the valley of the Dee, which flows through the districts of Braemar and Mar; that of the Don, which drains Alford and Garrioch; that of the Ythan,

which traverses Formatin; and those of the Upper Doveran, with the Bogie, which drains Strathbogie. The north-eastern portion of the county is known as Buchan, and supplies London with its finest beef. Granite and marble abound, but neither coal nor metals are found, and the manufacturing industry is of little importance.

Aberdeen occupies a geographical position at the outlet of the valleys of the Dee and Don, along which latter leads the natural high-road to Moray Firth, which amply accounts for its early growth into a prosperous city. Its harbour was frequented at a time when Edinburgh and Glasgow were mere villages, and for

Fig. 183.—*ABERDEEN.*

Scale 1 : 104,000.



centuries it has carried on a brisk trade with Northern Europe, the Low Countries, and France. Old Aberdeen is a long street to the north of the commercial quarter of the modern town, and, owing to its greater antiquity, can boast the most interesting edifices, including the remains of a cathedral of the fourteenth century, and the more ancient of the two colleges which jointly form the university. The modern town is seated at the mouth of the Dee, which was formerly the only harbour of the town, but has been supplemented by spacious docks, its entrance being at the same time protected by piers. The export trade is partly fed by Aberdeen's own industry, for there are flax, cotton, and woollen mills, engineering factories, foundries, soap and chemical works, india-rubber and gutta-percha works, and

important ship-yards for the construction of fast-sailing clippers and iron steamers. Quarries are worked in the neighbourhood, and the yards in which granite and marble are polished have not their equal elsewhere in Great Britain. Among the exports are also strawberries, vegetables, and cattle.

The upper valley of the Dee is much frequented by tourists, on account of

Fig. 184.—BALMORAL.
From the Ordnance Map. Scale 1 : 63,000.



its picturesque scenery, but it is a mere pastoral and sporting region without towns. *Ballater*, the principal of its villages, has mineral springs; above it is the sumptuous royal castle of *Balmoral*; and still deeper amongst the hills the

hamlet of *Castleton-in-Braemar*. Nor can the basin of the Don boast populous towns. *Inverurie*, which a canal joins to Aberdeen, exports corn and cattle, as does also *Old Meldrum*, on the heights to the east of it; whilst *Kintore*, lower down on the river, trades in limestone and granite. *Newburgh*, at the mouth of

Fig. 185.—PETERHEAD AND FRASERBURGH.

Scale 1 : 200,000.



the Ythan, is hardly more than a fishing village, but lovers of the picturesque will be delighted with a visit to Fyvie Castle, near the head of that river, one of the most sumptuous baronial mansions in Scotland. In the valley of the Doveran, on the western border of the county, are the small burghs of *Turriff* and *Huntly*, both with castles and in picturesque surroundings, but not otherwise remarkable.

Far more populous, at least as regards its seaboard, is the district of Buchan. Here are *New Pitsligo* and *Strichen*, in the interior of the county, both engaged in the cattle trade, and the prosperous seaport towns of *Peterhead* and *Fraserburgh*, together with *Roschearty* and other fishing villages. Peterhead is more especially engaged in the whale and seal fishery, and amongst its imports figures cryolite, obtained from the mines of Evigtok, in Greenland. Herrings are largely exported.

BANFFSHIRE mainly consists of the western slope of the Cairngorm Mountains and their spurs, which stretch to the north-eastward from Ben Muich Dhui, on the borders of Aberdeen, and sink down towards Strathspey and its swift-flowing salmon-yielding river. Only a small fringe along the coast is capable of cultivation. Here *Banff*, the county town, occupies a beautiful site at the mouth of the Doveran, and besides engaging in the fisheries and carrying on a brisk commerce, it has flax-mills, stone-yards, manure works, engineering works, and a ship-yard. Duff House, the magnificent seat of the Earl of Fife, adjoins it. *Portsoy*, *Cullen* (with its three rocks), and *Buckie* are fishing villages. In the interior are *Keith*, on the Isla, a tributary of the Doveran, with important horse and cattle fairs, woollen and flax mills, and *Dufftown*, in a side valley of the Spey, with the cathedral church of Old Machar.

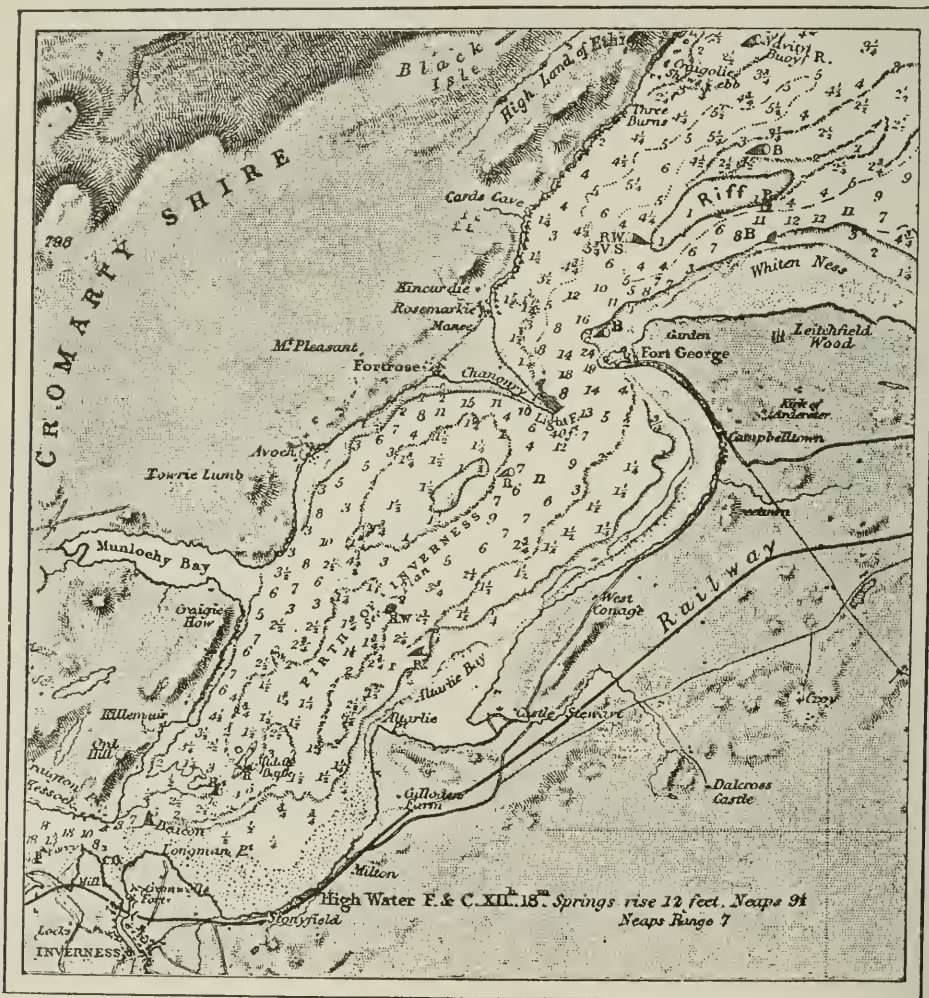
ELGINSHIRE, or MORAY, lies in the main between the Spey and the Findhorn, both rapid streams abounding in salmon. A spur of the Monadhliadh Mountains, which are formed of Silurian rock, fills up the centre of the county; but along the coast extends a belt of old red sandstone, where the soil is fruitful. *Elgin*, on the Lossie, 5 miles above Lossiemouth, has the ruins of a noble cathedral and a geological museum. *Forres*, on Findhorn Loch, is a quaint old town, with many gabled houses. Near it stands Sweno's Stone, an obelisk covered with curious carvings, probably intended to commemorate the expulsion of the Danes. *Findhorn*, *Burghead*, and *Garmouth* are fishing villages, the latter at the mouth of the Spey, up which are *Fochabers*, with Castle Gordon, and *Rothies*.

NAIRNSHIRE, a small county between the Findhorn (Strathdearn) and the Nairn, resembles Elginshire in its geological structure, except that the sandstone nowhere reaches the coast, which is fringed with a tract of blown sand and alluvial soil. *Nairn*, the county town, is much frequented for sea-bathing. About 5 miles above it stands Cawdor Castle, a fine feudal stronghold of the fifteenth century, built on the site of that in which Macbeth murdered Duncan.

INVERNESS, the largest of the Highland counties, not only includes a considerable portion of the mainland, stretching from sea to sea, but also the large island of Skye and the whole of the Outer Hebrides, with the exception of Lewis. The great feature of the mainland is the huge cleft of Glenmore, between Inverness and Loch Eil (see p. 333). The northern declivity of this valley is occupied by Lochs Ness and Oich, upon which Glen Urquhart, Glen Moriston, and Glen Garry open from the westward. The famous Foyers Falls are on the eastern side of Loch Ness, right opposite to the naked, hayrick-like

summit of Mealfourvounie (3,060 feet). Loch Lochy, with its tributary, Loch Arkaig, drains the southern portion of the great glen, which is joined on the east by Glen Spean, to the north of which lies the district of Lochaber. The Pass of Corryarrick (1,864 feet) leads from Loch Ness, across a spur of the Monadh-liadh Mountains, into Strathspey, which forms the most marked feature of

Fig. 186.—FIRTH OF INVERNESS.
From an Admiralty Chart. Scale 1 : 150,000.



Eastern Inverness, and at whose head on the borders of Perth lies the moorland district of Badenoch. Northern Inverness is drained by Strathglass, which, fed by streams descending from Ben Attow and Mam Soul (3,861 feet), throws itself into Beaully basin. The water-parting lies close to the western coast, and the peninsular districts of Glenelg and Knoidart (Laorbein, 3,341 feet), Arasaig with Loch Morar), and Moidart (bounded by Loch Shiel) are of small extent.

Excepting Inverness, there is no town or village in the county whose population exceeds 1,200 souls. Gaelic is still spoken by 83 per cent. of the population.

If *Inverness*, the "capital" of the Highlands, could be suddenly transported 6° of latitude to the south, to a milder climate, it might become one of the great cities of the world; for its geographical position upon a deep firth, and at the mouth of a cleft which crosses a whole kingdom from sea to sea, is exceptionally favourable. But the north of Scotland is too cold and inhospitable to give birth to a great city. Still Inverness is a town of noble appearance, and its commerce is not inconsiderable. The site of Macbeth's ancient castle is now occupied by a castellated court-house. Culloden Moor, upon which the fortunes of the royal house of Stuart were for ever wrecked, stretches along the Inverness Firth, below the town. *Campbelltown*, near the entrance to the Firth, which is guarded by Fort George, and *Beauly*, at the mouth of Strathglass, are merely villages. At Kirkhill, near the latter, is the county lunatic asylum. *Fort Augustus*, at the head of Loch Ness, has recently been converted into a Jesuit college; whilst *Fort William*, at the southern terminus of the Caledonian Canal, has grown into the second town of the county. Near it are Banavie, the ruins of Inverlochy Castle, and a famous distillery which supplies the "dew" off Ben Nevis, which looks down calmly from the other side of the valley. The villages of *Kingussie* and *Newtonmore*, in Strathspey, derive some importance from their position on the Highland Railway which connects Inverness with the basin of the Tay. It crosses the Pass of Drumochter, or Dalwhinni (1,450 feet), between Badenoch and Athol.

Portree, the capital of the Isle of Skye (see p. 347), is a small village on the steep side of a land-locked harbour. Near it is a stalactite cavern in which Prince Charles lay concealed for a time.

The united shires of Ross and CROMARTY stretch from sea to sea. Along their eastern seaboard lies a fertile tract of old red sandstone and alluvial soil, forming the peninsula of Black Isle, between Inverness and Cromarty Firths, and a second peninsula which terminates in Tarbat Ness, between the latter and Dornoch Firth. The bulk of the country consists, however, of sterile and almost deserted moorlands and mosses. The backbone of the Grampians runs nearer to the western than to the eastern shore, extending from Ben Attow northward through the Diresdh Mor, Ben Dearig (3,551 feet), and Badnagown Forest, or Freevater, to Ben More Assynt (3,281 feet), but towards the east there lies the bold mass of Ben Uaish, or Wyvis (3,425 feet), almost insulated. The western coast is indented with numerous lochs, chief amongst which are Loch Broom, to the north of the Gruinard district, on which stands the fishing village of *Ullapool*; Loch Ewe, continued by the inland Loch of Maree, at whose head the Sleugach rises to a height of 4,000 feet; the Gareloch; Loch Torridon, with the village of Shieldag, one of the most remarkable on account of its land-locked inner basin; Loch Carron, to the south of Applecross district, with the fishing village of Jeantown; and Loch Alsh. The bulk of the population is, however, gathered along the eastern seaboard. Here, on the northern shore of Inverness Firth, are

Fortrose, with the poor remains of a cathedral, and *Avoch*. *Cromarty* guards the entrance to the firth of the same name, and has an excellent harbour. *Invergordon* and *Aliness* are villages on the northern side of the Firth; whilst *Dingwall* is at its head, and at the mouth of *Strathpeffer*, in the midst of wooded scenery, at the back of which rises the towering mass of *Ben Wyvis*. The district of *Ferrindonald*, or of

Fig. 187.—KIRKWALL.

From an Admiralty Chart. Scale 1 : 150,000.



the clan *Munro*, which stretches along the northern shore of the Firth, has for centuries past produced a race distinguished for its military arduour. *Tain*, on the southern shore of *Dornoch Firth*, is rapidly losing its trade, owing to the filling up of its harbour with sand thrown up by the sea.

Lewis forms part of *Ross*, and here is *Stornoway*, the great fishing port.

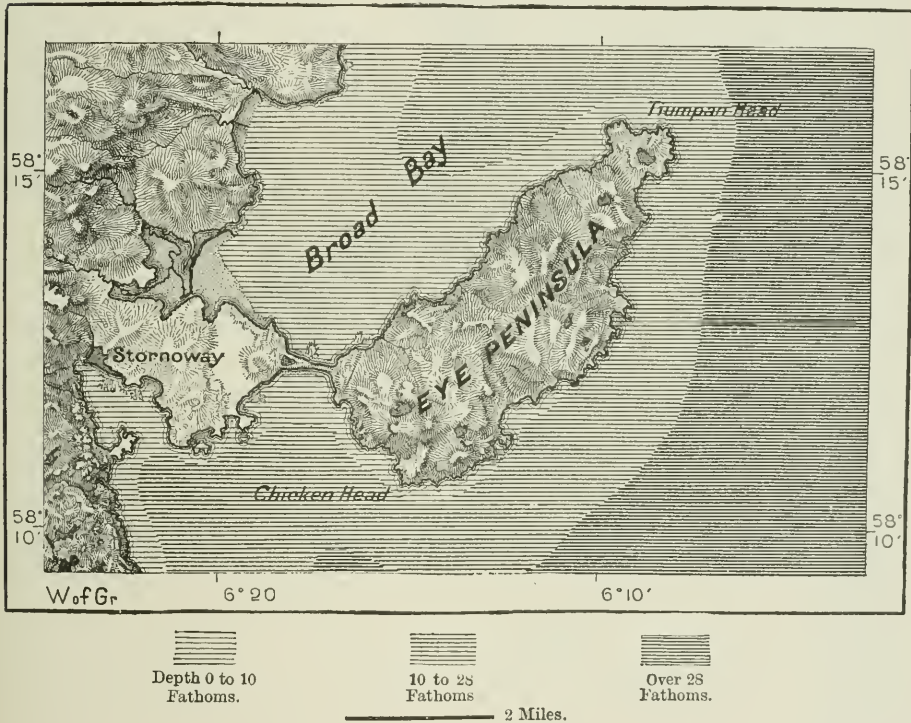
Many lives are sacrificed in the pursuit of its great industry, one quarter of the town being mainly inhabited by the widows of fishermen, and hence known as Widows' Row. *Swainsbost* is a fishing village on the north-western coast of Lewis.

Gaelic is still spoken throughout Ross, except in Black Isle, which was settled in the days of James VI. by people from the south.

SUTHERLAND is the wildest and most desolate of all the Highland counties, its only cultivable tract forming a narrow fringe along the coast of the North Sea. Oolitic limestones occur here, almost the only place where they are

Fig. 188.—STORNOWAY.

Scale 1 : 160,000.



found in Scotland. The interior of the county is furrowed by deep glens filled with lochs, above which Ben More of Assynt, Ben Klibrech (3,160 feet), and other mountains rear their naked heads. Chief among these glens is that within which lies Loch Shin, and which drains eastward through the Kyles of Sutherland into the Dornoch Firth. *Bonar*, at the head of that loch, and *Dornoch*, the county town, are mere fishing villages. *Golspie*, near which rises the magnificent Dunrobin Castle; *Brora*, where coal is won and clay manufactured into bricks; and *Helmsdale* lie on the open North Sea. *Portskerra*, *Tongue*, *Eddrachillis*, and *Lochinver* are small hamlets on the north and west coasts, which would escape notice except in a country so thinly peopled.

CAITHNESS forms the north-eastern extremity of Great Britain, and near Duncansby Head stood John o' Groat's house, often proverbially alluded to. Very different from the Highland counties, it is an old red sandstone country of undulating surface, for the greater part capable of cultivation, though still largely

Fig. 189.—LERWICK.

From an Admiralty Chart Scale 1 : 150,000.



covered with moors and marshes. It differs, too, in its population, Gaelic being spoken only in the interior. *Wick*, on the east coast, is the principal town, and one of the chief seats of the herring fishery, which also occupies the bulk of the people of *Thurso*, on the northern shore. Both these towns possess excellent harbours. Smaller fishing villages are *Lybster*, *Canisbay* (with a castle of the



PASS OF GLENCOE.

Earl of Caithness), and *Castletown*. *Halkirk* is the only village in the interior of the county.

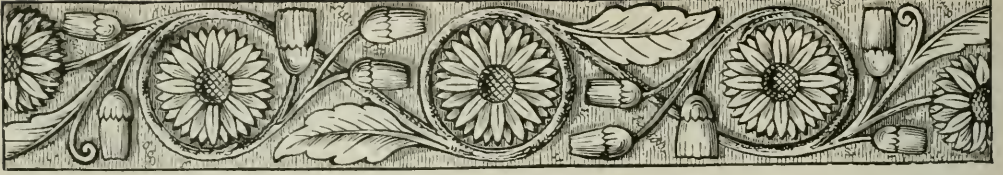
The ORKNEYS and SHETLAND ISLES (see p. 346) jointly form one county, whose chief town, *Kirkwall*, lies on Pomona, the "mainland" of the Orkneys. It is not a town of great population, but in its cathedral of St. Magnus, founded in the twelfth century, it possesses a unique specimen of Scandinavian architecture not unlike the cathedral of Trondhjem, in Norway. *Stromness*, on the western side of the Mainland, where its scenery is most beautiful, has a natural-history museum of some importance. *St. Margaret's Hope* is the principal village on South Ronaldsha.

Lerwick, the capital of the Shetland Islands, has an excellent harbour, but its trade is less than that of Kirkwall. Amongst its exports figure articles of hosiery and various woollen stuffs, which the women make in the long winter nights.

ARGYLLSHIRE, the most southern of the Highland counties, and the only one which lies wholly upon the western slope of the island, consists of a number of peninsulas and almost insulated land masses, separated by lochs and glens. Ardnamurchan advances its bold basaltic foreland far into the waves of the Atlantic to the north of Loch Sunart. Along the western side of Loch Linnhe lie Ardgower and Morven, almost severed by the deep Glen Tarbert, and separated by a narrow arm of the sea from the lofty island of Mull. On the eastern side lies the district of Lorne, pierced by Loch Etive, which receives the emissary of the inland Loch Awe, escaping through a succession of gorges. Loch Levin is farther north. *Ballachulish*, on its southern shore, is famed for its slate quarries; but far more attractive is the wild and gloomy Pass of Glencoe, which leads up from it into one of the most savage parts of the Highlands, and rendered infamous by the treacherous murder of the MacDonalds at the instigation of a Campbell (1692). *Oban*, to the south of Loch Etive, is one of the great tourist head-quarters of Scotland. The district of Argyll lies to the east of Loch Awe, along the western shore of Loch Fyne, near whose head stand the village of *Inverary* and the Gothic mansion of the Duke. The claw-shaped peninsula of Cowal stretches south between Lochs Fyne and Long, and has on its eastern side, opposite to the mouth of the Clyde, the watering-town of *Dunoon*.

Far away to the southward extends the narrow peninsula formed by the districts of Knapdale and Kintyre, the neck of which is cut across by the Crinan Canal—near whose eastern extremity are the villages of *Lochgilphead* and *Ardrishaig*—and which is almost sundered in its centre, where the two Lochs of *Tarbert* approach within a few hundred yards of each other. Near the southern extremity of this peninsula, in a district extensively peopled by Lowland farmers, stands *Campbeltown*, the largest town of the shire, famous above all other things for its whiskey.

On the islands of Argyllshire—Rum, Coll, and Tiree in the north-west; Mull and Colonsay in the centre; Jura and Islay in the south-west—there is no place even deserving the name of a village, *Tobermory* in Mull being merely a fishing station, with an inn for tourists.



CHAPTER XV.

IRELAND.

GENERAL FEATURES.



IRELAND and Great Britain form together a geographical unit. The latter, so elegant in its contours, is harmoniously balanced by the former, whose outline resembles that of a geometrical figure. Originally portions of the same continent, the two islands were severed in the course of geological ages without losing their family likeness. The geological formations exhibit the original continuity of the land, and the arm of the sea which separates the two islands exceeds only locally a depth of 50 fathoms.

Washed by the same sea and bathed in the same atmosphere, the destinies of the inhabitants of the sister islands have been similar, and for centuries past they have been under the same government. But hitherto this political union has not brought about an intimate coalescence between the Irish and their neighbours of the larger island. On the contrary, there exist feelings of strong hostility, fostered by differences of religion, manners, and national traditions. The Irish look upon themselves as a conquered race, injured in its most sacred rights and interests, while the English, conscious of their power, have too frequently treated substantial Irish grievances with contempt. They, too, regard the Irish as a conquered people, not entitled to an independent government, owing to their lack of strength to enforce it.*

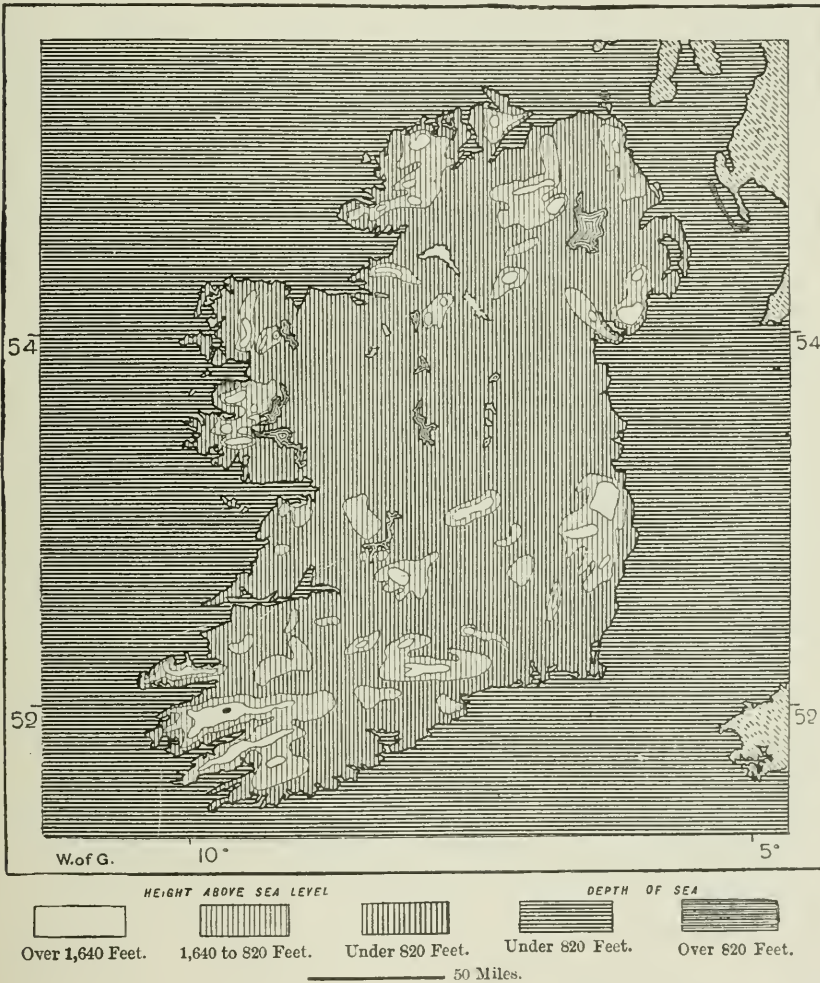
Ireland has sometimes been called an English Poland, but two centuries have elapsed since the Irish were able to place an army in the field to fight for their alleged rights. Their divisions are too numerous to enable them to overthrow the existing Government, and many amongst them are attached to England through kinship, religion, and interest. Every attempt at a resurrection—even that of 1798, when 30,000 men took the field—has been promptly suppressed. But though England need no longer dread an open rebellion, she has nevertheless to contend with the sullen hostility of a majority amongst the inhabitants of the sister island.

* Froude, "The English in Ireland."

More than once the foreign policy of Great Britain has been hampered through the discontent animating Irishmen on both sides of the ocean. Nor can Englishmen shut their eyes to the fact that the institutions forced by them upon Ireland have yielded no favourable economical results. Within a few miles of the wealthiest island in the world there live the most wretched human beings in Europe. In no other country has famine committed such ravages as on the fertile soil of

Fig. 190.—HYPSOGRAPHICAL MAP OF IRELAND.

Scale 1 : 4,500,000.



Ireland, and no other country has poured forth so broad a stream of emigrants. Though nearly as densely peopled as France, Ireland is inferior in that respect to Great Britain, and still more so in its agriculture, industry, commerce, and material wealth.

Ireland has a mean height of 400 feet,* and its shape is that of a diamond, with

* Leipoldt, "Ueber die mittlere Höhe Europas."

its edges crumbled up. Most islands and peninsulas rise into a central point, or are traversed by a backbone of mountains; but not so Ireland. The whole of the central portion of that island is occupied by a vast plain, nowhere more than 250 feet above the sea-level.* All around this depression the country rises into hills and mountains, which form a ring-shaped rampart along the coast, through which wide breaches at intervals give access to the sea. The plain comprises about half the area of the island, and consists of regularly bedded carboniferous limestone, whilst most of the mountains which environ it are composed of granite, metamorphosed slates, and other ancient rocks. Geologically Ireland contrasts in a remarkable manner with England, for whilst in the latter the various formations succeed each other with regularity, and enable us to measure as it were the cycle of ages since the deposition of the oldest sedimentary rock, the western sister island presents the appearance of having been almost wholly built up and sculptured during the epochs which preceded the carboniferous. There are hardly any mesozoic rocks, and the more recent formations are only very sparingly represented in the volcanic region of North-western Ireland, between Lough Neagh and the North Channel. Ireland is geologically a much more ancient country than England, its age being the same as that of the Scotch Highlands and of Wales, from which it was severed by an irruption of the sea.

The distribution of the mountain groups and the configuration of the coast explain in a measure the fate of the country. Though apparently compact in shape, Ireland nevertheless has no geographical centre. Its vast plain, extending from the Bay of Dublin to that of Galway, and covered with bogs and a multitude of lakes, very distinctly separates its two upland regions. The region in the north-east, which is bounded by the Bays of Dundalk and Donegal, and juts out like a peninsula towards Scotland, is occupied by a distinct group of mountains, and forms the nucleus of the province of Ulster. Similarly Connaught, in the north-west, has its separate system of mountains and lakes. Munster, in the south-west, and Leinster, in the south-east, are separated by the plain of Tipperary, whilst the greater portion of the central plain formed part of the ancient province of Meath. Each of these geographical provinces exercised a modifying influence upon the men by whom they were inhabited. Ulster was, above all, exposed to the incursions of the Scotch. Leinster and Meath appeared to be intended by nature to fall an easy prey to the English; whilst Munster, on the open Atlantic, attracted Phœnicians, and later on Spaniards, Algerines, and French, to its hospitable bays. Connaught, the most remote of these provinces, afforded a last refuge to the indigenous populations flying before conquering invaders. But, besides this, every separate group of mountains became a place of shelter to the conquered population dwelling around. The mountains of Galtymore in the south, and those of Tyrconnell in Donegal, have repeatedly afforded shelter to fugitives, and ancient customs long survived in their valleys after they had died out elsewhere.†

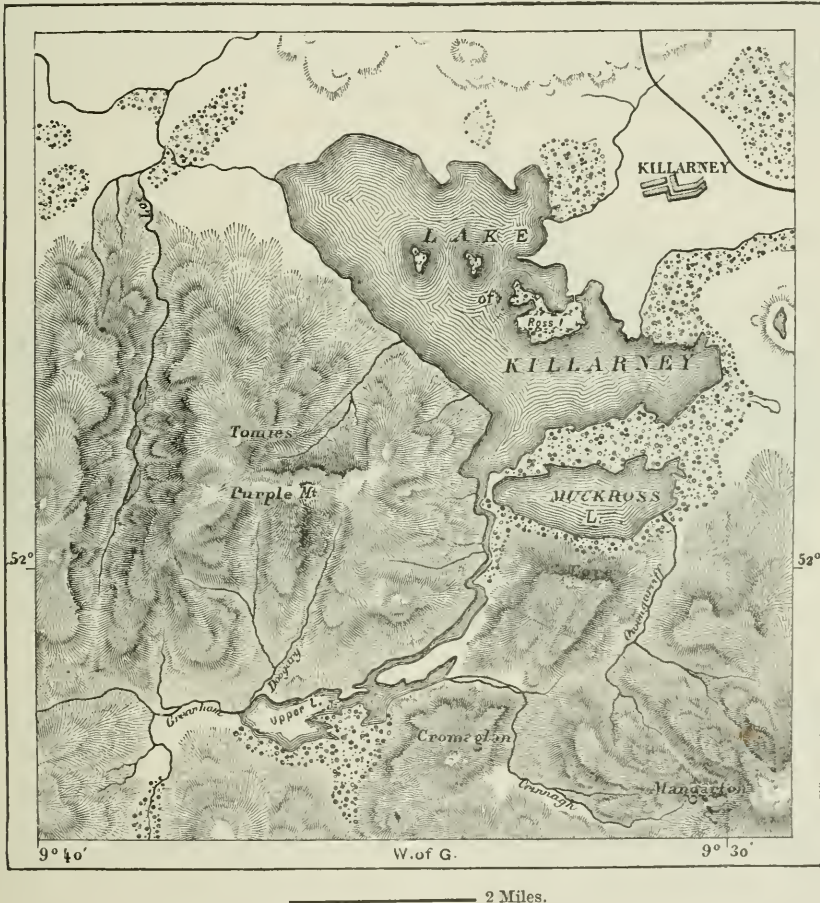
* Edward Hull, "The Physical Geology and Geography of Ireland."

† Sullivan, "New Ireland."

The most elevated mountains of Ireland rise in the county of Kerry, but are inferior in height to the giants of Scotland, and even to Snowdon of Wales. They form parallel chains running in the same direction as the deep and narrow bays which penetrate that part of Ireland, and consist of old red sandstone, whilst the valleys which open upon the sea are scooped out of the carboniferous formation. It can hardly be doubted that the whole of this region, mountains and all, was formerly occupied by the formation which we now

Fig. 191.—THE LAKES OF KILLARNEY.

Scale 1 : 130,000.



see in the valleys, but through the action of ice and other causes which still sculpture the face of the land all salient points have been planed off. Moraines and polished rocks at the foot of the mountains bear witness to the existence of glaciers, and the delightful Lakes of Killarney, which contribute so much towards the beauty of the country, occupy the bed of one of these moving rivers of ice. The beauty of these lakes and of the surrounding hills attracts crowds of tourists, but the solitary Rambler may derive greater pleasure from exploring the western slopes of the mountains. There he looks down, on the one hand, upon pro-

montories, islands, and the open Atlantic, whilst on the other the view embraces verdant valleys, foaming torrents, and mountain-tops, streaked black with peat, or dyed white, yellow, or green by mosses. The contrasts of light and shade presented by the mountains enclosing Dingle Bay, Kenmare River, or Bantry Bay are rendered all the more striking through the varied tints of the rocks. Few landscapes in Ireland can compare with the valley of Glengariff, on the shore of Bantry Bay, for magnificence of contours, wealth of vegetation, or the wild grace exhibited in every feature of the ground.*

The mountains of Kerry culminate in Carrantuohill (3,414 feet), in the Macgillicuddy Reeks. In the east they sink down into highlands, upon which rise at intervals a few hills. The river Blackwater runs along the northern foot of these hills until it abruptly turns to the south, and finds its way through a breach into Youghal Harbour. The hills which rise to the north of the

Fig. 192.—THE WICKLOW MOUNTAINS.



Blackwater are of considerable elevation, and really mountainous in appearance. They include the Knockmealdown (2,609 feet) and Comeragh Mountains (2,476 feet). Farther north, and almost insulated, rises the pyramidal mass of the Galtymore (3,015 feet), with small black lakes almost choked with sedge in its recesses. The various groups of hills on both banks of the Middle Shannon are likewise ranged along axes running from west to east, and this parallelism in the arrangement of the mountains of South-western Ireland must evidently be traced to a general cause acting over a wide area. Slieve Bernagh (1,746 feet) and Slieve Aughty rise to the west of the Shannon; the Silvermine Mountains, culminating in Keeper Hill (2,278 feet), Slieve Felim, and the Devil's-bit Mountain (1,586 feet) rise to the east; whilst Slieve Bloom (1,733 feet) occupies the most central position of the Irish hills.

The mountains of Wicklow do not, like those of Munster, include several distinct groups or ranges. They are of compact structure, and only on the south

* Thackeray, "Irish Sketch-Book."

does the valley of the Slaney separate them from a few outlying hills, including Mount Leinster (2,610 feet) and Blackstairs Mountain (2,409 feet). The nucleus of these mountains consists of granite, their axis of upheaval runs from south-west to north-east, and they culminate in Lugnaquilla (3,639 feet). Metamorphosed and other Silurian rocks conceal the base of the granite, and on the eastern slope an eruption of volcanic rocks has taken place. The mountain region of Wicklow, owing to the vicinity of the capital, is one of the most frequented in Ireland, as it is certainly one of the most beautiful. Lakes, cascades, and bold promontories overhanging the blue waters of the sea, ancient ruins and legendary lore, exercise an irresistible power of attraction. No spot in Britain has inspired more harmonious and sweeter verse than the "Meeting of the Waters" of the Avonmore and Avonbeg, which form the river Avoca.

Far wilder, but no less beautiful than the Wicklow Mountains are the highlands of Connemara, which occupy a portion of the almost insular region surrounded by Galway Bay, the Atlantic, Clew Bay, and Loughs Mask and Corrib. These mountains, formed of granite and metamorphosed rocks, and the rugged table-land of Slieve Partry, or Joyce's Country, upon which their craggy summits look down, are amongst the most ancient of all Ireland. Wandering through this desolate region, we might almost fancy that we were living in the early days of our planet, so primitive is the aspect of the country, with its piled-up rocks, island-studded lakes, winding streams, and swampy bogs. These western highlands culminate in Muilrea (2,688 feet), at the mouth of Killary Harbour. Very similar in aspect are the mountains which fill Western Mayo to the north of Clew Bay, most conspicuous amongst which are Mount Nephin (2,646 feet), Nephin Beg (2,065 feet), and Croaghaua (2,192 feet), on Achill Island.

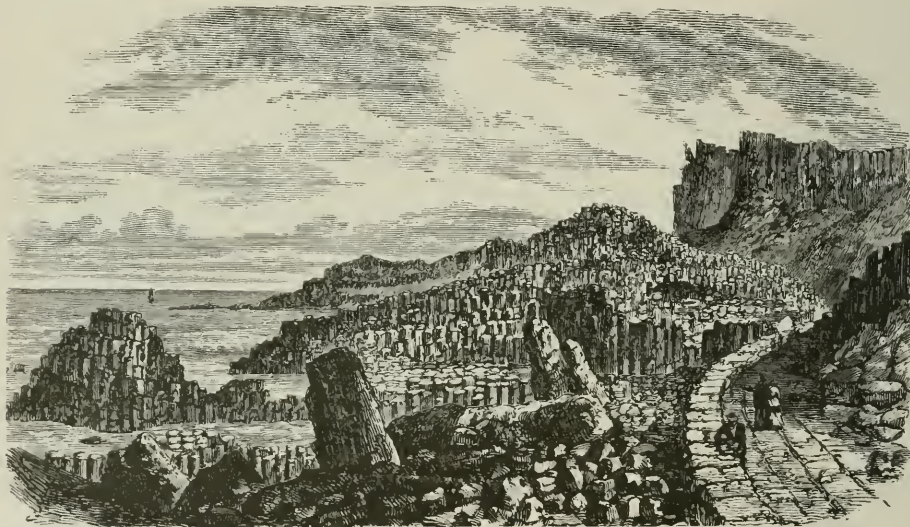
The highlands of Donegal, which occupy the north-western corner of Ireland, are of Silurian age, and must be looked upon as a prolongation of the Highlands of Scotland. Granite occurs plentifully within them, and Mount Errigal, close to the shore of the Atlantic, rises to a height of 2,466 feet. Separated from Donegal by the valley of the Foyle rises the moorland tract of Derry called Sperrin Mountains (2,240 feet), which is geologically of the same age as the north-western highlands.

Most recent amongst the mountains of Ireland are those of Mourne and Carlingford, which rise on either side of Carlingford Lough. Slieve Donard, a dome-shaped mass of granite rising from the margin of the sea to an elevation of 2,796 feet, is an imposing object, but there is every reason to believe that formerly these mountains were much higher. They are penetrated by innumerable intrusive streaks and dykes of basalt, and E. Hull likens them to the roots of volcanic mountains the trunk and branches of which have been removed by denuding agents, just as if a mountain like Etna were to be cut down into a group of hills rising to little more than half its present height.

Still more manifest is the action of volcanic forces in that part of North-eastern Ireland which lies between Lough Foyle, Lough Neagh, and Belfast Lough. This table-land of Antrim, above which Trostan Mountain rises to a height of

1,817 feet, is almost wholly buried beneath a sheet of lava of an average thickness of 100 feet. Its aspect possesses none of the picturesqueness that distinguishes the volcanic district of Auvergne, which is partly of the same tertiary age. There are neither cones nor cup-shaped craters, for these have been swept away by planing and levelling agents: wide tracts are almost perfectly level, and covered in many places with glacial drift. But the scenery is bold and striking wherever the table-land is bounded by noble escarpments, with precipitous flanks rising above the surrounding valleys or the sea. Along the shores of Lough Foyle, the lava rests upon softer cretaceous and triassic strata, and as these are undermined by the percolation of water from springs or by rains, the foundations give way, and the superstructure slips down the hillside, and lies a shapeless mass till it has been still further disintegrated by frost, rain, and streamlet, and carried away particle by particle into the ocean.* But elsewhere the lava rises boldly from the

Fig. 193.—THE GIANTS' CAUSEWAY.



sea in a series of terraces of dark columnar basalt, separated from each other by bands of reddish bole. At the bold promontory of Fair Head, or Benmore (630 feet), huge columns of basalt descend from the top of the cliff in one or two sheer vertical sweeps for several hundred feet, the base of the cliff being strewn with broken columns of trap heaped up in wild confusion.

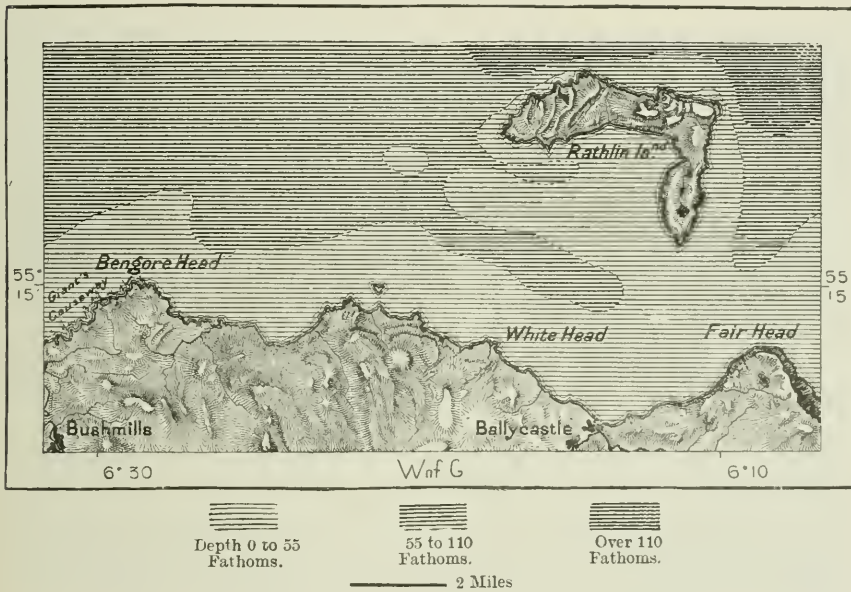
The Giants' Causeway, a pavement formed of the tops of 40,000 columns of basalt incessantly washed by the waves of the sea, is the most widely known amongst the natural curiosities of the coast of Antrim and of all Ireland. Geologists account for the marvellous regularity of these prisms by the large quantity of iron which they contain. About one-fourth of these crystallized masses consist of this metal, and this accounts for the extreme hardness of the basalt, the smoothness of its faces, its weight, its magnetic properties, and the

* Edward Hull, "The Physical Geology and Geography of Ireland."

rust which covers it. According to the legend, the Giants' Causeway is the remnant of a road which formerly led into Scotland, and, except that this highway was not constructed by human hands, the legend is true. The strait which now separates Ireland from Scotland, and which between Benmore and the Mull of Kintyre has a width of only 14 miles, had no existence at the time when the volcanic agencies were most active. The sheets of lava extended then from shore to shore, just as the mountains of Donegal were connected with those of Scotland, with which they agree in geological formation and direction. Rathlin Island, which lies off the coast of Antrim, between Benmore and the Giants' Causeway, is a remnant of this ancient bridge of lava, and the cliffs which bound it are formed of gigantic columns of basalt. It has been

Fig. 194.—THE GIANTS' CAUSEWAY AND RATHLIN ISLAND.

Scale 1 : 250,000.



recently proposed to join, by means of a tunnel, the extreme point of Scotland at the Mull of Kintyre to the Irish coast at Cushendun Bay. Such a tunnel would not only be much shorter than that proposed for the Strait of Dover, but no danger whatever could arise during its construction from an irruption of the sea.

The most elevated mountains of the Ireland of to-day are far from piercing the line of perennial snow, but there was a time when the whole of the country was buried beneath a sheet of ice and snow. The volcanic rocks of Antrim, which are partly covered with glacial drift, bear visible witness to the existence of glaciation, and there is hardly a locality of Ireland which does not exhibit traces of the ancient passage of glaciers. Boulder clay and gravels, erratic blocks, polished rock surfaces, all tell the same tale—that the island formerly resembled Greenland. The fine lines and groovings that mark the direction in which the ice sheets had

moved have been carefully mapped, and they show that the ice travelled outwards from a great central snow-field which extended obliquely across the country, from the mountains of Connemara to the plateau of Antrim. To the north of this field of snow, which included the plateau of Magheraboy, with its hills grouped like the ribs of a fan, the groovings and striations are towards the north-west, whilst on the opposite slope their direction is south and south-west, except where the course of the ice was impeded or deflected by local mountain barriers. The sheet of ice which at that period covered the plains of Ireland had a thickness of 1,000 feet.*

But long before the ice planed and levelled vast tracts of the surface of Ireland, the action of the water, operating through untold ages of our planet, had swept

Fig. 195.—THE TABLE-LAND OF MAGHERABOY.

Scale 1 : 200,000.



away a considerable portion of the surface strata. The plain which occupies nearly the whole of the centre of the island is a proof of this. The extent of this plain coincides pretty nearly with that of the carboniferous limestone, but the coal measures of this formation have been removed, and there remain as it were merely the foundations of the ancient edifices. Only here and there, in well-sheltered localities, a few shreds of the coal-bearing strata which formerly overspread so large a portion of the island still exist. The agents of denudation which deprived Ireland of her upper carboniferous strata were operative

* Maxwell Close, "Glaciation of Ireland;" Hull, "Physical Geology and Geography of Ireland."

for many geological ages succeeding their deposition, during the whole of which the greater part of the island remained above the level of the sea. Evidence of local depression, such as is afforded by ancient peat bogs lying below the sea-level,* is not entirely wanting, but the raised sea-beaches and terraces of Antrim and Dublin are far more striking. The most continuous of these ancient terraces is that which can be traced from Antrim southward as far as Wicklow, and upon which one of the wealthiest quarters of Dublin has been constructed. The average elevation of this ancient sea-beach is 15 feet, and it corresponds in a remarkable manner with the "25-foot terrace" of Scotland, which, in Professor Geikie's opinion, may have been elevated into dry land since the Roman occupation of Britain. But whatever the extent of these local oscillations of the land, the bulk of the island remained emerged during the whole of the secondary and tertiary epochs. Whilst England, for the most part plunged beneath the ocean, successively received the sedimentary deposits which account for the variety of its geological formations, Ireland, on the contrary, was exposed to the wasting influence of sub-aërial agencies which destroyed its superficial strata. The waste resulting from this denudation was carried away by ocean currents to the sister island, and piled above the vast stores of coal already deposited over the English area, protecting them from sub-aërial waste on the emergence of the land. Thus Ireland stripped herself to clothe her sister. This debt, says Professor E. Hull, ought never to be forgotten.

The prodigious number of lakes scattered over the surface of Ireland is the necessary consequence of the general configuration of the country. There are lakes in the glens of the mountains, or at their foot, but by far the greater number are to be met with in the plain. The rain falling over a level country soon fills up the depressions in the soil, and in many instances these disconnected sheets of water cover almost as great an area as the solid land which separates them, and it only needs a local subsidence or depression of the surface through the agency of a fault, or the formation of a barrier across the effluent draining them, to combine all these separate basins into a lake of more considerable size. Thus it was through the agency of a fault in the volcanic rocks that Lough Neagh was formed. That lake, although the largest in the British Islands—it covers 153 square miles—is very shallow, and notwithstanding that its area is equal to two-thirds of that of the Lake of Geneva, its cubic contents only amount to the twenty-fourth part of those of the Swiss lake.†

The majority of the lakes which form so prominent a feature of the limestone plain are of chemical origin. Their water contains carbonic acid gas, which dissolves the limestone in which they are bedded, and carries away enormous quantities of carbonate of lime in solution. By this process the lakes are being constantly enlarged. We have elsewhere described some of the "sinks" and "swallows" met with in the calcareous regions of continental Europe. In Ireland, too, the same phenomena may be observed, though not perhaps on so

* Kinahan, *Quarterly Journal of the Geological Society*, i. 1877.

† Hardman, *Journal of the Royal Geological Society of Ireland*, iv.

large a scale as in the mountains bordering upon the Adriatic. Sometimes it happens that the arch which covers one of the corroded hollows or channels gives way, and the chasm thus created may give birth to a lake, or lay open an underground river channel. It is thus that Lough Lene feeds both the Dell, a visible affluent of the Boyne, and an underground channel which communicates with a river flowing into Lough Ree. The great Lough Mask, which fills a rock basin in Connemara, has apparently no outlet, except through an artificial canal connecting it with the still larger Lough Corrib. But on closer examination it has been found that it is drained by an underground river, which reappears in copious springs at Cong. These springs, which immediately give birth to a large river,

Fig. 196.—THE UNDERGROUND EMISSARY OF LOUGH MASK.

Scale 1 : 145,000.



were formerly held in high veneration, and an abbey was built by their side. Several lakes, similar in all respects to that of Zirknitz, in the Carso, are to be met with in the fissured limestone region of Western Ireland. During summer they retire into underground cavities, and sheep browse upon the herbage which springs up on their bed ; but soon the rainfall causes the hidden water to rise again to the surface, the lake bed is once more filled, and sometimes it even overflows and inundates the country around. One of the *turloughs*, or winter lakes, of Galway occasionally expands until it is 2 miles wide.*

But whilst some lakes, owing to the erosive action of the water, are perpetually

* William Hughes, "Geography of the British Islands."

enlarging their area, others grow smaller, and in the end disappear altogether, although they receive the same amount of rain as before, and have not been drained. Lakes of this kind are sucked up as it were by the vegetation by which they are invaded. Bogs, or wet spongy morasses formed of decayed vegetable matter, cover hundreds of square miles in Ireland, and frequently occupy the beds of ancient lakes, as is proved by the heaps of fresh-water shells found at their bottom. In many instances this process of displacement is still in course of progress. The lakes invaded by the marsh plants grow gradually smaller until they resemble wells, dangerous to the wanderer unaware of their existence. Occasionally, too, the spongy mass pours forth a stream of mud. This happens after heavy rains, which cause the bog to swell, until its coarse tissue of vegetable matter is no longer able to resist the pressure exercised from below. The gases shut in beneath the upper layers of turf then escape with a noise resembling that of a volcanic explosion, and streams of water and liquid mud rush out through the opening effected by them. One of these eruptions took place in 1821 in the peat bog of Kinalady, near Tullamore, about the centre of the great plain. Rumbling noises had been heard for some time from the bog, and its surface heaved like an agitated sea, when at length a torrent of mud, 60 feet in depth, burst from a crevice, overwhelmed the houses and trees that stood in its way, and spread itself over an area of 5 square miles.* Sometimes calamities of this kind result from a want of foresight on the part of peat-cutters. By removing the peat from the neighbourhood of a lake, the rampart which retains the still liquid mass that occupies the interior is sometimes weakened to such an extent as to be incapable of resisting the pressure from within, and an eruption of mud is the result. The history of Ireland abounds in instances of this kind. The wanderer who wends his way across the bogs can tell at once when he is passing over a concealed lake, for the soil beneath him quakes with every step he takes, and he feels as if he were walking upon a carpet stretched out in mid-air.

The Irish bogs are amongst the most extensive in Europe, and even in the *veen* of the Netherlands we do not meet with such wide tracts of almost deserted country, where mud cabins as black as the peat in the midst of which they rise are rare objects. The bogs of Ireland cover an area of 4,420 square miles; that is, nearly the seventh part of the whole island, and in many instances they are 40 feet thick. Those spread over the great central plain have an average thickness of 26 feet; but supposing the available peat throughout Ireland to have a depth of no more than 6 feet, a reserve of fuel equal to 15,000,000,000 cubic yards lies on the surface. Peat is largely used in the country for domestic purposes, but cannot compete with mineral coal in factories.

The Dutch bogs naturally divide themselves into *hooge veen* and *laage veen*, and similarly in Ireland we have red bogs and black bogs, according to the plants of which they are formed and their degree of moisture. The black bogs, which supply nearly all the peat, occupy the plain and the deeper valleys of the mountains. The vegetable matter of which they consist is undergoing gradual

* Jacob Nüggerath, "Der Torf."

mineralisation, and the peat found here and there almost resembles lignite. They contain also the trunks of trees, known as bog-wood or black oak, from their ebony colour, which is due to an impregnation with iron. Some of these trunks dug up from the peat bogs have become so flexible in the course of their long immersion that they can be cut into straps and twisted into ropes. Formerly the peasants wove them into coarse nets, upon which they suspended their beds. Mr. Kinahan is of opinion that, to judge from the layer of bog which covered them, the trunks of oak dug up at Castleconnell, near the Shannon, must have been buried at least fifteen hundred years.

The red bogs, owing to their position on the hillsides, are far less humid than the black ones, and for the most part clothed with patches of heath. Most of the mountains of Ireland are covered with bog from the foot to the summit; even rocky precipices have every vantage-point occupied by patches of bright bog, presenting the appearance of hanging gardens. We may wander for days through the hills without ever quitting these red bogs, now and then alternating with quagmires. In several counties the hills seem to rise like islands above the vast expanse of black bog surrounding them. The peasants say that the wanderer in these deserts may chance to pick up a "hunger herb," in which case he runs a great risk of dying of exhaustion; but they ascribe to the influence of a mysterious plant what in their state of poverty may often happen from sheer want.

The bogs and lakes scattered broadcast over the country store up an immense quantity of water; but so considerable is the amount of rain that they are able to feed numerous rivers in addition. The water of many of these rivers is stained black with particles of humus; and several amongst them, including that which enters Youghal Harbour on the south coast, are known as "Blackwater." Indeed, the rivers of Ireland might be classified into white and black, as are those of the basin of the Amazonas, according to whether their waters contain tannin or not. All those which have a long course through bogs are of a darkish hue, but several purify themselves in their passage through large lakes.

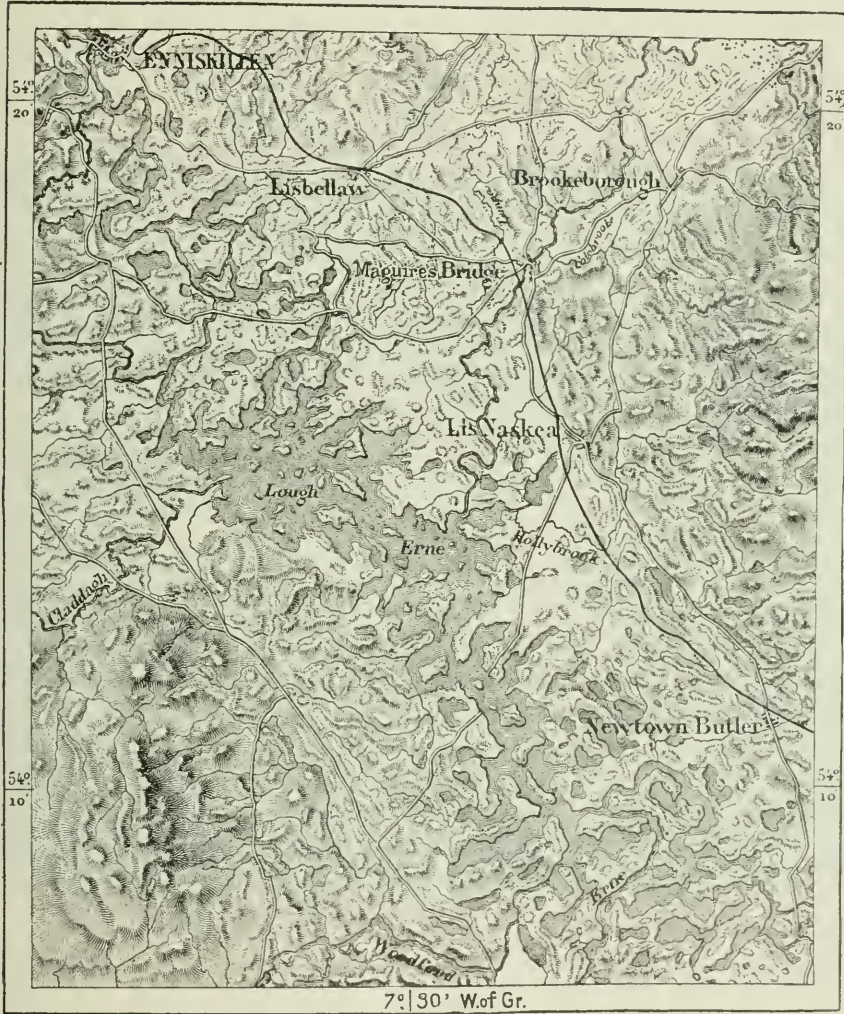
The streams which traverse the great limestone plain resemble chains of lakes rather than rivers. The normal rivers of Ireland, those which have filled up the ancient lake basins of their valleys, rise at a considerable elevation, and slope down rapidly and regularly to their mouth. Amongst such is the Barrow, which, after its junction with the Nore and Suir, falls into Waterford Harbour. Such also are the Lee and Blackwater in the south, the Slaney and Liffey in the east. Even the Boyne, though rising in a region of swamps, has drained the ancient lakes which formerly occupied its basin. The Foyle, in the north, is also one of the rivers whose regimen has become regulated, whilst the Bann only traverses a single lake, Lough Neagh. Very striking is the contrast between rivers such as these, and those which traverse the plain, sluggishly wandering from lake to lake. Among these latter are the rivers that drain the lakes of Connaught—the Erne, which is a lake-like expansion for the greater part of its course, and the Shannon, the most considerable river of all Ireland.

The Owenmore, which drains the valley lying between Cuilcagh on the north

and Slieve Nakilla on the south, and which flows into the head of Lough Allen, is the real head-stream of the Shannon, but popular tradition looks upon the Shannon Pot as the veritable source. This is a copious fountain rising in a limestone caldron, and fed by a subterranean channel which connects it with a lough at the base of Tiltibane. Scarcely formed, the river is lost in Lough Allen

Fig. 197.—UPPER LOUGH ERNE.

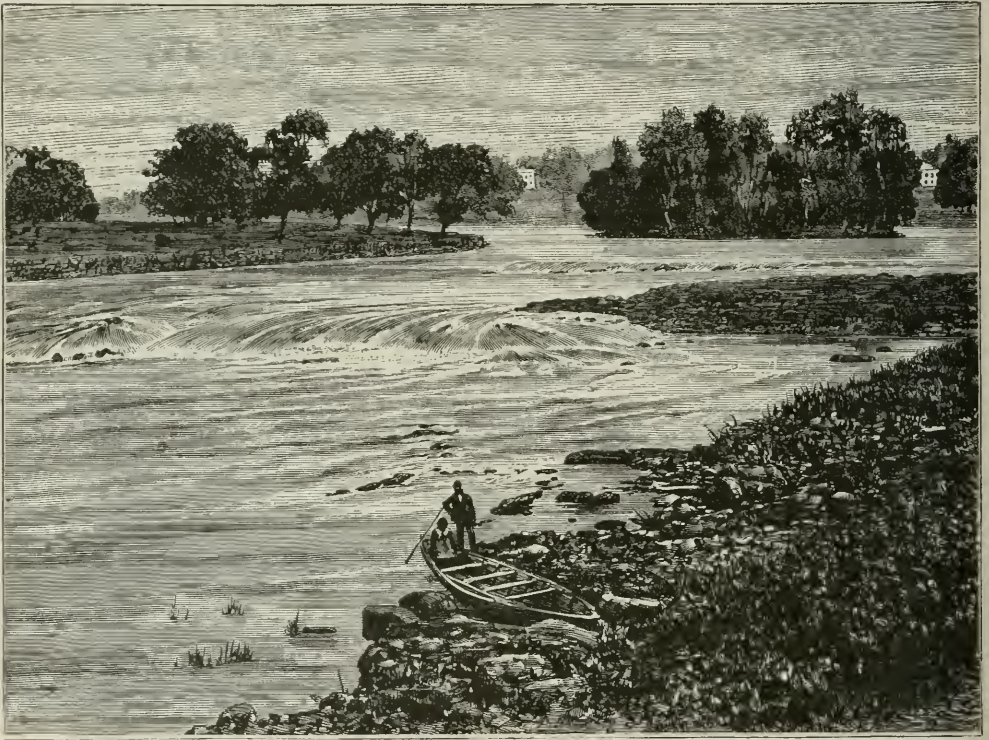
Scale 1 : 200,000.



(160 feet above the sea), and thence to its mouth, for a distance of 209 miles, the Shannon is navigable. On issuing from Lough Allen the river flows sluggishly for 80 miles over the central plain, passing through Lough Ree (122 feet) and Lough Derg (108 feet), when it enters the gorge of Killaloe, separating Slieve Bernagh from Slieve Arra, and with a rapid fall reaches Limerick, where it becomes a tidal river. We may fairly ask how it happens

that the Shannon, instead of flowing straight into Galway Bay, from which no natural obstacle separates it, strikes across a mountain range formed of hard and solid rocks, through which it had laboriously to cut itself a passage. It is quite clear that the gorge of the Shannon is not a work of recent date; it was scooped out long before the great central plain had been denuded of the masses of softer rocks which formerly covered it. Then this mountain range formed no obstacle, for the river flowed at an elevation of many hundred feet above its present channel. At that remote epoch it first began to scoop out the ravine through which it now takes its course, and the work of erosion kept pace with the denudation which swept away the coal measures of the great central plain. In this gorge, cut

Fig. 198.—THE FALLS OF DOONASS, AT CASTLECONNELL.



through Silurian slates and old red sandstone, the river has a rapid fall, and before it reaches the maritime plain pours its immense volume over a ledge of rocks. Castleconnell, with its lofty towers, fine mansions, and green lawns descending to the waterside, commands this sublime spectacle of a foaming river rushing onward through a congregation of huge rocks. The eye grows giddy as it follows the hurrying eddies. But, at the foot of the fall, all is peace. The deep and silent water, reflecting the trees that grow upon the banks, lies dormant; the current is hardly perceptible; and the river resembles a lake shut in by ivy-clad walls.

Below Limerick the Shannon enters its broad and winding estuary—one of

the greatest contrast to the uniform development of the east coast. On that side of Ireland there are but two islands, Lambay Island and Ireland's Eye, near Dublin Bay, besides the banks which mark the former extent of the coast, and terminate with the Tuskar Rock in the south.

The reasons for this contrast must be looked for in glacial action; for Western Ireland, which is exposed to the moisture-laden winds of the Atlantic, remained much longer buried beneath a sheet of ice and snow than the east, where the dry winds blowing from the continent exercised more influence. But other agencies have no doubt aided in the formation of these western firths. The elongated bays of Kerry, for instance, so remarkable for their parallelism, appear to have been scooped out by the chemical action of the waves, which dissolved the calcareous rocks of the valleys, but respected the old red sandstone forming the promontories. This chemical action is analogous to that which continually enlarges the lakes of the central plain. In several instances these Irish firths, like those of Scotland, terminate in lakes, as in the case of Ballinskelligs Bay, near the south-westernmost promontory of Kerry, at the head of which lies Lough Currane. In the same county of Kerry we meet with rocks which become calcined through the action of the sea. The cliffs of Ballybunion, which rise in crags and needles to a height of 150 feet, are perforated by caverns at their foot. They enclose beds of bitumen and deposits of pyrites, which a landslip occasionally exposes to the action of the atmosphere. Whenever this happens the pyrites decompose spontaneously with a considerable evolution of heat, sufficient to set fire to the bituminous rocks, and whilst the foot of the cliffs is then lashed by the waves, columns of smoke may be seen curling up from its summit.*

The climate of Ireland is essentially a maritime one, and even more humid than that of Great Britain. The rainfall throughout the island averages 36 inches, and in the hills, which condense the moisture of the prevalent westerly winds, the amount of precipitation is more considerable still. No other country of Europe is so abundantly supplied with rain. Occasionally the downpour along the western coasts is so considerable that the sea, for a great distance from the land, becomes covered with a thick layer of fresh water. The fishermen drink this water, and naturalists may witness the curious spectacle of two superposed faunas—the one fluviatile, the other marine. The marine animals, on being brought into the surface water, become paralyzed, whilst the fluviatile ones are poisoned on being plunged into deep water.† Westerly and south-westerly winds prevail, and they are frequently of great violence. The American cyclones, in their progress to Europe, always pass over Ireland. Even the Irish Sea is exceptionally tempestuous, owing to these south-westerly winds and the conflicting tidal waves which meet within it.

The extreme humidity of the climate exercises a retarding influence upon the harvest. Wheat is never cut before the beginning of September, and in excep-

* William Ainsworth, "Caves of Ballybunion," 1834.

† Edward Forbes, "Natural History of the European Seas."

tionally wet years its harvest has had to be postponed to the middle of October, whilst the oats have been as late as November. Under the same latitude in Russia the cereals are sown later and harvested a month or forty days earlier. Such is the contrast produced by differences of climate ! But these disadvantages are attended by corresponding privileges. The woods, meadows, fields, and gardens are clad with verdure throughout the year, and entitle Ireland to the epithets of "Green Erin" and the "Emerald of the Seas." The rich verdure, murmuring streams in every valley, mists spread over the hillsides, and clouds scudding along the skies impart an aspect of sadness and placidity to nature which impresses the mind in the same manner as do the sweetly melancholic strains of Irish melody.* The equability of the climate enables many southern types of plants to flourish upon the island. The inhabitants of Mediterranean countries, when they visit the Lakes of Killarney, are surprised to see the strawberry-tree growing on the hillsides. Even in the north of the island winter in the valleys sheltered against northerly winds is very mild, the strawberry growing by the side of the cypress, as it does in Italy. Ireland, as respects a portion of its flora, forms part of Lusitania, for about ten species, including the arbutus, or strawberry-tree, are common to it and to the Azores, Madeira, Portugal, and the Cantabrian coast. This points to the fact that there was a time when Ireland formed part of territories now severed from it by an irruption of the sea. Almost every one of the islands along the west coast has a flora of its own, with which mingle plants from neighbouring botanical regions.†

Ireland was formerly clad with forests, as is proved not only by the trunks of trees found in the bogs, but also by many geographical names, such as Derry, which means "Grove of Oaks." These forests disappeared in consequence of wars and maladministration. Even during the Middle Ages wood had become so scarce that in certain districts of the island it was cheaper to make the hoops for barrels of whalebone. In the west, and more especially in the county of Mayo, trees were so scarce about thirty years ago that the peasants imagined them to be huge vegetables. Ireland is poorer in species of plants and animals than Great Britain, and still more so than continental Europe, this being one of the penalties attached to an insular position. In Belgium, for instance, we meet with twenty-two species of reptiles; in England with scarcely half that number; in Ireland with only five. Forbes concludes that these animals migrated westward along the isthmus which formerly attached the British Islands to the continent. When the sea swept away the connecting land all of these animals had not yet emigrated, or, at all events, the colonies which they had planted were not numerous enough to resist destructive agencies. The Irish peasants—a very superstitious race—believe that serpents and toads formerly abounded on their island, but that St. Patrick destroyed them. The promontory from which he flung them into the sea is still pointed out, and although the experience of our zoological gardens

* Thackeray, "Irish Sketch-Book."

† G. More, *Proceedings of the Royal Irish Academy*, July, 1876; Charles Martins, *Revue des Deux-Mondes*, 1st March, 1867.

proves the contrary, the peasants maintain that every serpent dies as soon as it touches the soil of Ireland. Geologists have discovered in Ireland the remains of the mammoth and hippopotamus, and of numerous ruminants, including deer and two species of the ancient ox. Three species of deer have been discovered in the caves, peat mosses, and alluvial deposits of the country, of which the red deer survives in the mountains of Killarney, whilst the great Irish deer may have lived until towards the close of the twelfth century. The abundance of deer must be attributed to the absence of animals of the feline tribe, such as the hyena and cave lion; and their only enemies were the wolf and the bear, against which fleetness of limb and the power of natation afforded trustworthy means of escape.*

The relative poverty of the Irish fauna reveals itself in the paucity of birds of passage no less than in that of sedentary animals. Out of thirty species of continental birds which pass the summer in England, all but one extend their journey as far as Scotland; but, according to Harting, only eight or nine visit Ireland, the rest being either deterred by the width of the Irish Channel, or altogether unaware of the existence of that island. The magpie was formerly looked upon as a new arrival in Ireland. This is a mistake; but that bird, being protected by superstition, has become very common, and during summer evenings dense flocks descend upon the sown fields.

THE PEOPLE.

In accordance with a tradition formerly often quoted, Ierne, or Ireland, is indebted for its epithet of *Insula Sacra* to the fact that at the time of the Deluge it floated like an ark upon the surface of the waters, and on its subsidence gave their first inhabitants to the neighbouring islands. The Irish, therefore, not only deny that their ancestors came from foreign lands, but they claim also to have peopled all the neighbouring countries. As to the ancient monkish "annals" of the country, they abound in so many legends that it is next to impossible to discover the truth which underlies them. Irish chroniclers, who have endeavoured to transform the mythology of their race into a regular history with dates and genealogies, speak of the Firbolgs, or "men dressed in the skins of animals," as the aboriginal inhabitants of the country. These "beings of the night" were conquered by the "gods of day," or *Tuatha-de-dananns*, who were the people of Dana, the mother of the gods.† These latter were acquainted with the metals, and they made arms, tools, and musical instruments. But the *Tuatha-de-dananns* were vanquished in turn by a third body of invaders, the warlike "Milesians" of Spain, who came into the country eleven or fourteen centuries before Christ, and overthrew the kingdom of Inis-Fail, the "Island of Doom." The descendants of these Milesians, it is pretended, can be recognised, even at the present day, by having an *O'* or a *Mae* prefixed to their family names. It is only natural that a proud people like the Irish, in its day of humiliation, should

* Hull, "Physical Geology," &c.; Owen, "Palæontology."

† D'Arbois de Jubainville, "Esquisse de la Mythologie irlandaise" (*Revue archéologique*, June, 1878).



TYPICAL IRISH.

take a delight in the past, and deify its heroes. The descendants of these ancient Irish still celebrate the glories of other days, and sing with enthusiasm the high deeds of their warrior ancestors, as if a share of the distinction achieved belonged to themselves. Fin MacCumhal, the legendary king, whose name has been changed into Fingal by the Ossianic muse, is ever present to the mind of the children of Erin. To him they dedicate the most beautiful sites of their island, and everywhere they see the remains of his castles. Quite recently those Irishmen who leagued together in order to free their country from English rule assumed the name of "Fenians," in memory of Fin, or Fion, who commanded the national militia seventeen centuries ago.*

The similarity between Erse, or ancient Irish, and the Gaelic of the Scotch Highlands justifies us in the belief that at the dawn of history the inhabitants of Ierne, Igbernia, or Hibernia were the kinsmen of the Caledonians of Scotland. But quite irrespective of the Spaniards in Galway and Kinsale, many strange elements have since those early days become fused with the Celtic population of the island. Danes, or "Northmen," have frequently invaded the country. It is they who gave a name to Dan-na-n-gall, or Donegal, and for over two centuries they were the masters of Dublin. Wexford and Waterford were likewise Danish towns. The geographical nomenclature of the country furnishes a rough guide to the relative importance of the constituent elements of the population. More than three-fourths of the names are Celtic,† but there are many whose origin is evidently Scandinavian. As a matter of course the largest bodies of invaders and colonists arrived from the neighbouring island of Great Britain, and not only the English and Scotch took possession of a part of the country, but the Welsh had their share likewise. The barony of Forth, at the south-eastern point of Ireland, is said to be inhabited by the descendants of Welshmen who came into the country with Strongbow, about seven centuries ago. Welsh was spoken there up to the close of last century, and the manners of the people conclusively prove that they are the kin of the English Cymry. They are said to be more orderly and peaceable than the native Irish around them, and also more happy, which may arise in a large measure from their being the owners of the land they cultivate. If Thackeray‡ may be believed, they took the most energetic measures for keeping possession of their land, for they killed every stranger whom they suspected of an intention of acquiring seignorial rights. Until recently there was not in these "Welsh Mountains" of Wexford a single large estate.

The English, no less than the Welsh, and others who preceded them, came into Ireland as conquerors. According to an old legend, the first invader, in his ardour to take possession, cut off his right hand before he landed, in order that it might seize upon the country a little earlier: hence the "bloody hand" which figures in the coats of arms of many noble families of Ireland. Arriving during the latter half of the twelfth century, the English had to fight for more than four

* Sullivan, "New Ireland."

† Chalmers, "Caledonia."

‡ "The Irish Sketch-Book."

hundred years before they had secured their conquest. The "pale," or barrier of stakes, which formerly bounded the territories they held in Leinster, Meath, and Munster, expanded or retreated according to the fortunes of war, and even in the days of Henry VIII. the English pale of Dublin extended only 20 miles. But more than four centuries of partial occupation had done much to mingle the blood of the two peoples, and to spread the use of the English language. In a subsequent age, during the great religious wars, Ireland was once more subjected to devastation. The population of whole towns was either massacred or exiled in a body, and the conquered territories were divided amongst English colonists. Queen Elizabeth gave away 200,000 acres in the province of Munster; James I. confiscated six entire counties in Northern Ireland (Armagh, Cavan, Fermanagh, Derry, Tyrone, and Donegal), with a view of "planting" them with Scotch and English Protestants, and later on, by a legal quibble, possessed himself of an additional 500,000 acres in various parts of the island, which he likewise distributed amongst colonists drawn from Great Britain.* During the Commonwealth one of the first acts of the Parliament was to bestow 1,000,000 acres upon English clergymen, and when the Catholics had been definitely defeated they were compelled to move into the country districts of Connaught and Clare, as the towns of this territory were to become exclusively Protestant. Their southern boundary was to be the Shannon, and every Irishman found on the left bank of that river might be killed without fear of legal consequences. "Go to hell, or go to Connaught" is a proverbial saying which originated at that time. There is no doubt that many Irish Catholics, or "Tories," remained in the provinces from which they had been legally expelled. This was more especially the case as regards the mountains of Tyrconnell, Galtymore, and Kerry, and the almost inaccessible bog lands. Besides this, the new landowners themselves kept about them a number of peasants to cultivate the soil. Nor were all the Protestants men of foreign origin. These latter, however, formed at that time a very considerable portion of the population of Ireland, and they were subsequently reinforced by the peaceable immigration of Scotchmen into Ulster, where they assimilated the manners of the people to those of the Lowlands on the other side of the Channel. As a result of all these immigrations, there must have occurred a strong infusion of Anglo-Celtic blood; but in frequent instances the two races have lived side by side without intermingling, and the stock of the people of Ireland appears to be Celtic to this day. In Ulster we meet with "triple" towns, like those which formerly existed in Greece and Italy. Downpatrick, for instance, has an Irish quarter, a Scotch quarter, and an English quarter. Amongst emigrants of various races there still remain to be mentioned the German "Palatines," who settled near Galway at the commencement of last century.† It is, however, a curious ethnological fact, and one reminding us of analogous features in the fauna and flora of Ireland, that a gipsy has never been seen upon that island. These wanderers, who are represented in every part of the world, including even

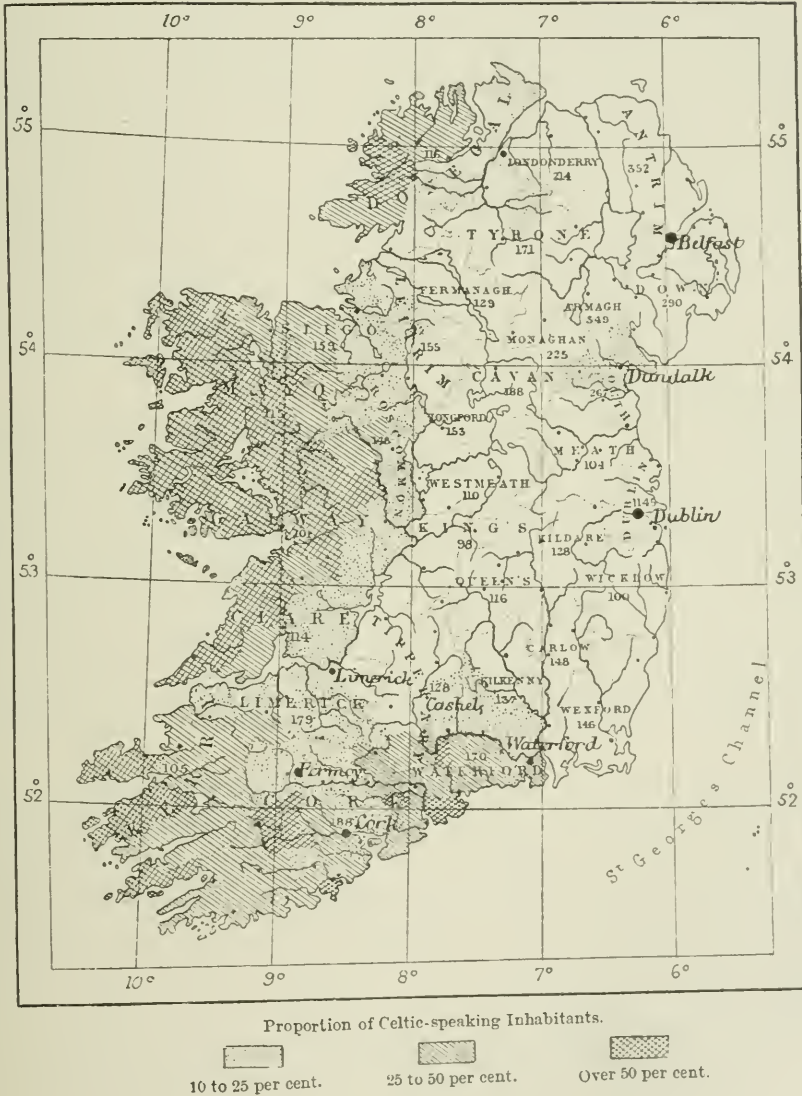
* Lingard; Hallam; Gustave de Beaumont, "*L'Irlande, sociale, politique et religieuse.*"

† J. G. Kohl, "*Reisen in Irland.*"

South America, have never yet crossed the narrow Irish Sea. Nor are Jews very numerous.

But whatever race element may preponderate in the Irish people, the ancient language, still spoken on Rathlin Island and in a few remote glens of Antrim,

Fig. 200.—LINGUISTIC MAP OF IRELAND.



is now of very little importance. In Ireland it is understood by a majority only in portions of the west and south-west, and more especially in the counties of Mayo and Waterford. In 1851 the districts in which Irish was the language of the majority had an area of 9,325 square miles, with 1,328,938 inhabitants; in 1871 their area

was 5,293 square miles, with 545,658 inhabitants.* Altogether Irish was spoken in 1851 by 1,524,286 persons (23·26 per cent. of the population); in 1871 by only 817,875 persons (15·11 per cent. of the population), and amongst these latter there were only 103,563 who were unable to speak English. Erse, which is written in the same characters as its predecessor *bérta feini*, no longer suffices for giving expression to all our modern ideas, and notwithstanding the efforts of resuscitation made by the Society for the Preservation of the Irish Language, English has become the language of civilised life, as in the other parts of the kingdom, and the days of Irish are numbered. Not a newspaper is published in that tongue, and the translations of the Iliad and of Moore's "Irish Melodies," recently prepared by the Most Rev. John McHale, are not works intended to meet a popular demand. The older Irish literature, however, is very rich. It includes amongst others a large number of manuscripts relating to the traditions of Ireland. Most of these works show that the manners which existed at the time of their composition have passed away. Amongst the many Irish documents and chronicles preserved in the library of Trinity College are the "seven times fifty" histories, which the old bards used to relate on festive occasions in the presence of chiefs and king. These "histories" deal with massacres, battles, invasions, sieges, navigations, voyages, visions, tragedies, and kindred subjects.†

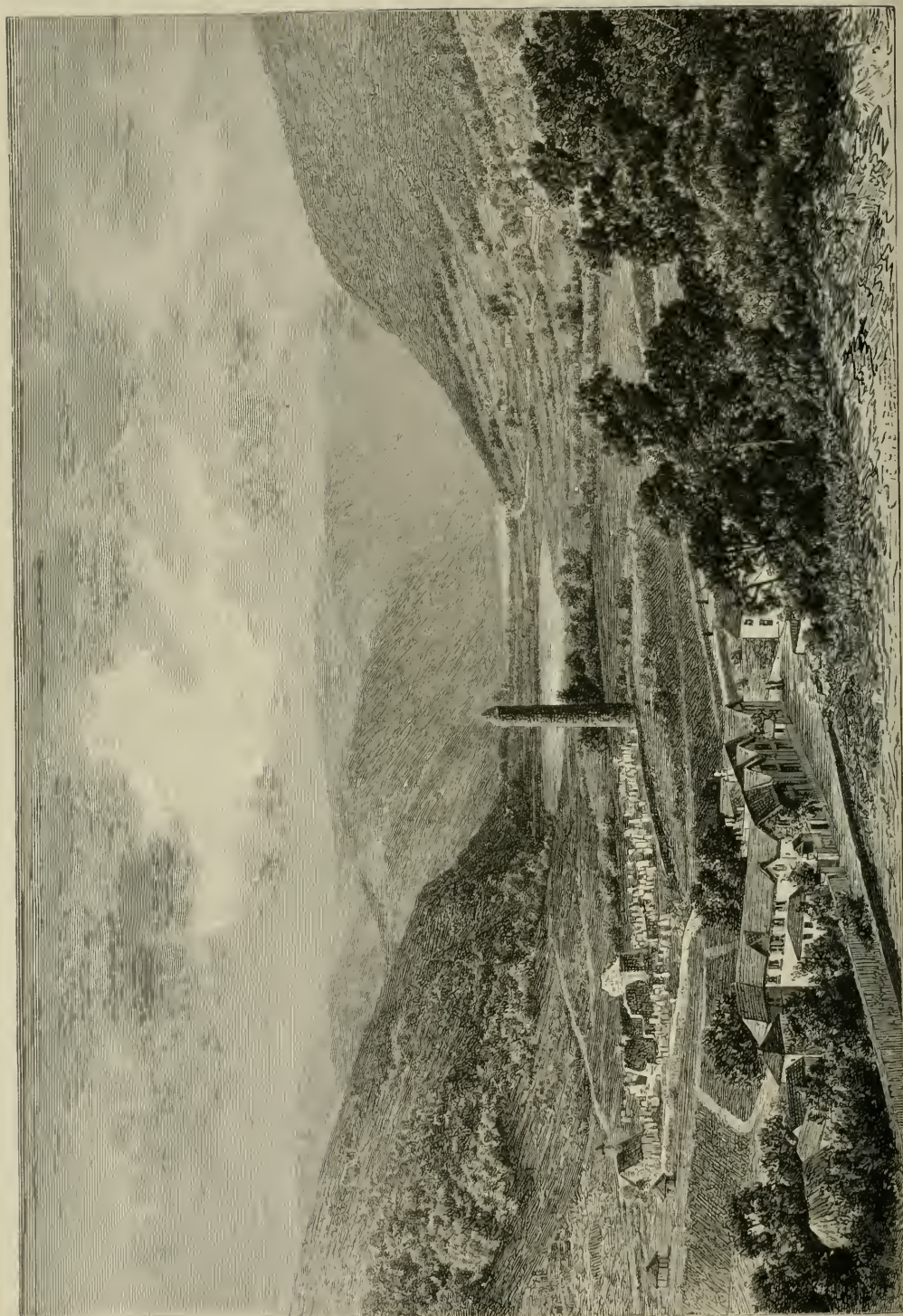
But though Erse is on the point of being altogether superseded by a language possessing greater vitality, and better adapted to give expression to contemporary ideas, it will survive in the geographical nomenclature of the country. Mountains will continue to be known as *Slieve*, *Ben*, or *Knock*; hills, mounds, and rocks will still remain *Duns*, *Carricks*, *Croaghs* or *Croghans*, *Cloghs*, and *Kens*; the words *Lough* and *Innish*, or *Ennis*, will apply to lakes and islands; a swampy plain will be known as *Curragh*; a watercourse as *Ana*, or *Anagh*; towns and villages will be recognised by the prefixes *Kill* and *Bally*; while *More* (Great) and *Beg* (Little) will serve to distinguish neighbouring mountains, rivers, bogs, and inlets of the sea.

Ogham inscriptions have been found far more plentifully in Ireland than in the sister island, and they have given rise to incessant discussions amongst the learned. This alphabet, which they succeeded in deciphering after bilingual descriptions in Latin and Old Irish had been discovered in the south of England and in Wales,‡ consists of lines, or groups of lines, attached to a single stem. Several of these inscriptions, and apparently those of the latest date, read backwards; that is, from right to left. According to the ancient chronicles the oghams were introduced into Ireland by the Tuatha-de-dananns many centuries before the Christian era, and they certainly date back to a time when the inhabitants were heathens. These characters are in all probability of an age anterior to that of the Romans; for we can hardly conceive that they should have

* Ravenstein, "On the Celtic Languages in the British Isles," 1879.

† Brian O'Looney, "On Ancient Historic Tales of the Irish Language," *Proceedings of the Royal Irish Academy*, December, 1875.

‡ Sam. Ferguson, *Proceedings of the Royal Irish Academy*, August, 1874.



VALE OF GLENDALOUGH.

been invented after the much simpler Latin alphabet had become known.* But however this may be, it can hardly be doubted that most of the stones with ogham inscriptions were raised between the fifth and eighth centuries of our era, for they bear Christian emblems. As to the relationship supposed to exist between the oghams and the Scandinavian runes, the learned have not yet arrived at an agreement.

Ancient stone monuments, which were formerly for the most part attributed to the Danes, abound in Ireland, and this applies more especially to *raths*, or sepulchral mounds. There are districts in which every hill-top is crowned with a rath. The sixty-seven stones of Raphre, in Donegal, form an old temple similar to Stonehenge; the extensive entrenchments of Grianan, near Londonderry, cover a whole hill. Elsewhere we meet with cromlechs rising above the heather. But the most remarkable, and at the same time most mysterious, monuments of ancient Ireland are the round towers scattered over the whole island. Of ancient structures of this kind eighty-three have been discovered, whilst in Scotland, where similar towers were probably constructed by men of the same race, there are but two, and in the whole remainder of Europe none at all. The round towers of Ireland bear some resemblance to minarets. Several of them are built of unhewn rocks, not touched by iron implements; others are of hewn stone. Most of them rise singly. Their height varies between 70 and 128 feet, with a diameter of 10 to 16 feet, and the walls decrease in thickness with the height. Excepting four instances, the openings which give access to the interior are at a considerable elevation above the ground.† As in the case of the *nuraghe* of Sardinia, these towers have been ascribed to the most diverse peoples, and whilst there are some who look upon them as the work of Phœnicians or Carthaginians, others prefer the claims of fire-worshippers, Greeks, or Danes. History is silent as to their origin, but it is certain that the Danes were not the architects, for they raised no such monuments in their Scandinavian homes, and we can hardly conceive their doing so in foreign lands which they were about to colonise. These round towers were most likely the spontaneous product of Irish architects, and were probably built between the ninth and twelfth centuries, some as belfries and watch-towers, others as appendages to religious edifices. It is true that none of the ancient ecclesiastical documents refer to them,‡ unless, indeed, they are *clocteachs*, or steeples, as Mr. Petrie supposes. The towers of Kilkenny and several others stand on the site of Christian churchyards, which can only have been opened after the arrival of St. Patrick, for all the dead lie stretched out from east to west.§ But whatever may have been the origin of these towers, there can be no doubt that the clergy held possession of them during the Middle Ages, for churches and chapels have been raised in their vicinity. At the present day Irish patriots look upon these round towers as the great national

* John Rhys, *Proceedings of the Royal Irish Academy*, December, 1875.

† Mr. and Mrs. Hall, "Ireland, its Scenery and Character."

‡ J. Bourke, "The Aryan Origin of the Gaelic Race and Language."

§ Dunraven, "Notes on Irish Architecture."

monuments of the country, and when they sought to render exceptional honour to their champion O'Connell, they raised one of these minarets over his grave in the cemetery of Dublin.

In many respects the Middle Ages, and even prehistoric times, continued longer in Ireland than in Great Britain.* Lake dwellings, such as are now being explored with so much curiosity in the lakes of the Alps, existed until quite recently in the vast lowland region of Ireland. The nature of the soil was favourable to their existence. After the great forests had been destroyed, an island, surrounded by deep water, afforded, in fact, the most secure retreat. Several *cranogues*, or wooden forts placed upon piles or artificial islands, continued to be inhabited up to the beginning of the seventeenth century. The more remote a district, and the less intercourse it had with strangers, the longer could ancient manners and customs survive in it. The island of Aran, which lies out of the world, from which it is defended by winds and waves, and abounds in cromlechs, raths, and barrows, was the "Sacred Island" of the Irish Celts, as the islands of Sein, Mona, and Iona were sacred to the Britons of Armorica and Great Britain. Still more remote are the islands of Inishkea, in the open Atlantic, off the coast of Mayo. Their inhabitants, living far away from high-roads of commerce and ignored by their conquerors, were heathens in 1872, and probably are so still. When the wind blows a tempest and renders fishing impossible, the islanders carry an idol, dressed in wool, along the strand, in the hope that he may calm the sea: their wishes are frequently fulfilled, when they respectfully restore their idol to its sanctuary. Seals are numerous along the coasts of Inishkea, but the inhabitants take care not to kill them, for they believe that the souls of their departed relatives reside in them.† Inish Torragh, or Tory Island, near the coast of Donegal, has no gods of its own, but it has a fisherman, elected by his three or four hundred companions, for its king, and this potentate has power to exile those amongst the islanders who refuse compliance with the ancient customs.‡ On Slieve Callan, an almost insulated mountain in the county of Clare, on the Bay of Liscannor, there stands an altar raised in honour of the sun-god, and up to the close of the last century pigs were sacrificed upon it, and flowers scattered over the turf around it.§

In a few of the more remote districts the aspect of the inhabitants is almost that of savages, their small eyes, low foreheads, and tangled hair giving them the appearance of Tatars. But as a rule the Irish are a fine race, notwithstanding the small turned-up nose, which at once enables us to pick out a son of Erin amongst a crowd of Englishmen.|| The natives of Joyce's Country, in Connemara, are of almost gigantic stature, with fine limbs and strong muscles. The men of Tipperary, though smaller, are no less strong, and are distinguished for their agility and grace. Comparative measurements made in the universities of the United Kingdom

* O'Curry, "On the Manners and Customs of the Ancient Irish."

† *Journal of the London Anthropological Institute*, ii. p. 447.

‡ A. M. Sullivan, "New Ireland."

§ Ferguson, "Evidences of Sun-Worship at Mount Callan," *Proceedings of the Royal Irish Academy*, December, 1875.

|| Roget de Belloguet, "Ethnogénie Gauloise," ii.

prove that the young men of Trinity College, Dublin, do not yield in stature or strength to their rivals of Oxford, Cambridge, Glasgow, or Edinburgh ; nay, that they are even slightly their superiors. Even Englishmen * admit that most Irish-women who are able to lead a life of ease and nourish their beauty are of more distinguished appearance than their own countrywomen ; they are at the same time full of grace and open-hearted gaiety, and exhibit considerable taste in their dress. There are few countries in Europe whose women possess so much true dignity and self-respect. In many districts of Ireland even the peasant women, notwithstanding the arduous labour which has fallen to their lot, are indebted to their race for noble features and a proud carriage which would attract attention anywhere.

It is wrong to judge all Irishmen from those amongst them who have been depraved by years of oppression and hereditary poverty ; to reproach them with their obsequious language and the profuse flattery they lavish upon their superiors ; or to subscribe the cruel saying that you need only "put an Irishman on a spit, and you will always find another Irishman to turn it." Even the poorest Irishmen, notwithstanding their abject condition, still retain excellent qualities. They love each other, assist one another in misfortune, and always keep the door of their cabin hospitably open. Little suffices for their wants, and they are gay even when deprived of all that renders life easy. The least benefit conferred upon them lives ever after in their memory. Though great braggarts and not very careful of the truth, owing to an excess of imagination, they are nevertheless sincere and ingenuous at bottom, and religiously keep their word when once it has been pledged. They love fighting for fighting's sake. In many respects they have remained children, notwithstanding the hard experience of their lives. They are full of natural spirits, and subject to fits of transport ; easily carried away by their imagination, and addicted to idle fancies. They lack a sense of order, and are not sufficiently persevering in their enterprises. Drunkenness is a vice no less general in Ireland than in England. Between 1839 and 1845 there existed a prospect of all Irishmen taking pledges of temperance and forswearing the use of usquebaugh. At the time when the fervour evoked through the preaching of Father Mathew was at its height, about half the population of the country pledged itself to abstain from strong drinks. In a single day 13,000 persons turned teetotalers, and in several districts all public-houses were closed. But in a poor country the temptation to drink is strong, and the pledges were soon forgotten. Drunkenness received, indeed, a fresh impulse from the great famine. In many localities the persons charged with the distribution of the charitable funds were at the same time dealers in spirits, and what they gave with one hand they took back with the other.

To Englishmen Irish "bulls" are often a source of amusement, but for all this, and notwithstanding their assumption of ingenuousness, Irishmen are, as a rule, very shrewd. They are cunning when in dread of violence, but respond frankly to kind words. Naturally intelligent and of inquiring mind, they attend the

* Thackeray, "Irish Sketch-Book."

schools with diligence. Until recently there existed in Ireland, as in Greece, open-air or "hedge schools," in which the teacher, seated under a hedge, was surrounded by his studious pupils. This custom dated from a time anterior to 1830, up to which year all primary education, excepting that vouchsafed through the agency of the Established Church, was interdicted.* The Irish are vehement in their language, ardent in attack, and smart in repartee. They excel in flights of fancy, and readily find a word to sum up a situation. They are, in fact, born orators, and a greater number of truly eloquent speakers have arisen amongst them than in England. Their writers possess no less verve than their talkers, and the Irish newspapers are written with a persuasiveness which we look for in vain in the journals published on the other side of St. George's Channel. Bravery is a quality common to all Irishmen; they have supplied the armies of England with some of its most famous leaders, and from them its ranks are largely recruited. During the seventeenth and eighteenth centuries thousands of Irishmen died fighting in French regiments, for they turned lovingly to France as to a country which professed the same religion, and shared with them the hatred of England. The narrow bays on the south-western coasts were at that time the trysting-places where young Irishmen desirous of entering the service of France found vessels to carry them over the sea.

For two hundred years the Irish have been a conquered people, and are so still. English rule, against which they have struggled so long, still weighs upon them, and Irish patriots have not ceased to claim "Home Rule" in one shape or another. The Isle of Erin is the only country in Europe which wholly escaped Roman conquests, and never suffered from the invasion of barbarians. The character of its civilisation was consequently more spontaneous, and although ardent patriots exaggerate its importance, it certainly did exercise an influence upon the development of Great Britain; and Ireland, far from having invariably been England's pupil, acted occasionally as her neighbour's instructress. The conquest of Ireland by the English was virtually an irruption of barbarians, which arrested the free flight of Irish genius; and in losing their independence the inhabitants of Erin lost, at the same time, the prerogatives which that independence had conferred upon them. From that day Ireland ceased to play a part in European history. All civilisation vanished during the atrocious wars which devastated the soil of Ireland and destroyed the population of whole districts. Sir John Norris, one of the English leaders during the reign of Queen Elizabeth, killed all the inhabitants of Rathlin Island, and the refugees who had fled to it for shelter, sparing neither women nor children, but driving all into the caverns, and killing them, as he states in his official reports, "as if they had been seals or otters."† But the Irish avenged themselves in 1641, when they massacred at least 20,000 Englishmen and Scotchmen. For this, however, Cromwell inflicted a terrible punishment upon them. We all know how he treated Drogheda, with what tranquillity of mind he caused fire to

* Sullivan, "New Ireland."

† Froude, "The English in Ireland."

be laid to the church of St. Peter, within which the defenders of the town had sought a refuge. Cromwell thought of selling Ireland to the Jews, on their undertaking to pay an annual rent of £2,000,000. "It is no felony to kill an Irishman" was a proverb of that period.

The greatest change introduced in Ireland by the English conquerors was that which revolutionised the tenure of lands. Up to the close of the sixteenth century there existed no individual property in the soil. The land belonged to the septa, or clan, whose chieftain, elected for life, distributed it amongst the members of the community, as was done in Russia until the abolition of serfdom. There existed no large stone buildings in the rural districts, and the agricultural nomads lived in miserable mud cabins, not superior to those of the present day. When James I. succeeded to the English throne, he offered to convert into feudal landowners the chieftains whom he found in possession, and few amongst them resisted this tempting offer. Subsequently many turned rebels or engaged in conspiracies, when the land was taken away from them, and handed over to Scotch and English immigrants. The dispossessed septas, however, never forgot that anciently the soil was the common property of all; and even now, in many villages, the descendants of the old chieftains are treated with deference, and entertained at the public expense, as if they were the elect of the people.

Deprived of their land, the Irish were at the same time persecuted on account of their religion. Even after the law which compelled all Irishmen to live beyond the Shannon had become a dead letter, those amongst them who were Catholics were denied the protection of the common law. For many years a premium was paid to any one who turned Protestant, and the Protestant son of a Catholic father might at once enter into possession of his father's goods, though the latter was still living. The office of informer or "priest-hunter" became a profession which led to honours and fortune. Up to 1832 the Irish were represented in Parliament exclusively by Protestants, and quite recently they were obliged to pay tithes to the Anglican Church, of which they were not members. The mass of the Irish people are much attached to the Catholic priests, whom they look upon as the natural representatives of the national cause: they have forgotten that it was Pope Adrian IV. who gave Ireland to the English, and that the priesthood at that time zealously supported the cause of the invaders.

Poverty must naturally be very great in a country like Ireland, where most of the soil is in the hands of great landowners; where industry, except in a few favoured districts, is hardly known; and where, during the eighteenth century, the development of various manufactures was stifled in the bud through the jealousy of avaricious English monopolists. Only in Ulster did the farmers enjoy security of tenure, for the privileges granted them by James I. made them proprietors of all the improvements they had effected on the land. As long as they paid their rent the landlord was not permitted to disturb them, unless, indeed, he was prepared to compensate them for their improvements. These privileges did not, however, extend to the other provinces. An absurd adherence

to ancient routine and a too minute subdivision of the soil caused the agricultural resources of the country to be wasted. In Donegal and other parts of Northern Ireland large farms used to be leased to a number of persons, by whom they were subdivided according to the quality of the soil, a portion of each field being allotted to a separate tenant. When the father died, his separate lots were again subdivided according to the number of his children, until only a crumb remained to each. This method of subdivision, known as "rundale" or "runrig," could not, however, be applied to animals, which each of the tenants was called upon to feed in turn. It is easily understood that the soil produced but little under so pernicious a system, and notwithstanding its natural fertility and abundant rains, Ireland was incapable of feeding all her children. Famines became permanent, and the animals hungered with their masters.

Famines* have been of frequent occurrence in Ireland. The most terrible famine of the last century was that which occurred in 1739-40, but more terrible still was the great potato famine of 1846-7, when over 1,000,000 persons perished, notwithstanding the £10,000,000 advanced by Parliament for its relief. The population became reduced by about 2,500,000, and out of the 1,180,409 persons who emigrated to America, 25 per cent. are stated to have died within twelve months after leaving. The wages paid to agricultural labourers from the close of the French wars up to the time of this dreadful visitation are variously estimated by political economists at 3d. or 4d. daily, a sum still further reduced by periods of enforced idleness. About the middle of the century, when the purchasing power of money had already considerably fallen, Irish labourers earned between 2s. 6d. and 5s. a week!† And such a pittance was to suffice for the wants of a whole family. Need we wonder, after this, that the Irish peasantry were condemned to a potato diet? That tuber had been introduced into the island about the close of the sixteenth, or at the commencement of the seventeenth century.‡ Ordinarily it yields an abundant crop, but for that very reason has proved an affliction to the island, by rendering its inhabitants improvident. The cultivator trusted to his potatoes to supply the means of subsistence, and planted little else; and when disease struck his staple crop he was reduced to the necessity of eating his pigs, and that last resource failing, there remained nothing for him but to die. Shan Nan Vocht—"poor old woman"—is the name which Irishmen mournfully bestow upon their native country.§

During the famine of the black '47 the unfortunate people sought to

* Years of famine in Ireland since the birth of Christ:—10—15; 76; 192 (first notice of emigration); 535—38; 664; 669; 700; 759; 768; 772 (famine from drought); 824-5; 895—97 (invasion of locusts); 963-4 (parents sold their children); 1047; 1116 (people eat each other); 1153; 1188; 1200; 1209; 1227; 1262; 1271; 1295; 1302; 1314; 1316; 1317; 1332; 1339; 1410; 1433; 1447; 1491; 1497; 1522; 1565; 1586 (consequent on the wars; human flesh eaten); 1588-9 (human flesh eaten); 1601—3 (cannibalism); 1650-51 (sieges of Limerick and Galway); 1690; 1727—29; 1739-40; 1765; 1801; 1812; 1822; 1831; 1845 (£850,000 expended by Government in relief of sufferers); 1846-7; 1879. (Cornelius Walford, "On the Famines of the World," *Journal of the Statistical Society*, 1878.)

† Buckle, "History of Civilisation in England."

‡ Dufferin, "Irish Emigration, and the Tenure of Land in Ireland."

§ Sullivan, "New Ireland."

appease their hunger by eating fallen cattle and even grass. Some died quietly in their cabins; others, wandering aimlessly about, fell down by the roadside, never again to rise; even in the towns starving men and women sank down exhausted, but the passers-by, accustomed to the sight, sought not to raise them up. They waited for the police to remove the obstruction. In many districts the dead were no longer buried; it was deemed sufficient to pull their cabins down upon the corpses to serve as a sepulchral mound.* About 3,000,000, or nearly one-third of the entire population, appealed to public charity for assistance; but what availed ordinary means of relief in so unparalleled a disaster? Entire districts, more especially in the west of the island, were almost desolated, and the population sank from nearly 9,000,000 to 6,500,000. The famine carried off many more victims amongst Celtic Catholics than amongst Anglicans and Presbyterians, most of whom are of Scotch or English descent. These latter were rich enough to emigrate,† whilst at the same time the embroidery of muslin, carried on in most of the cabins of Ulster, the least Irish of the provinces of Ireland, saved the lives of many of the inhabitants.‡

In the course of last century only Protestant Irishmen emigrated to the United States, whilst Catholics remained at home, and appeared to have almost taken root in their townships; § but after the great famine, Irishmen, of whatever religion or race, readily found their way to a country which appeared to offer them better chances of succeeding in life than did their own. Encouraged by England, which thus got rid of a starving multitude, and by the United States, anxious to secure labourers to till their uncultivated fields, emigration soon assumed the dimensions of an exodus. In 1871, notwithstanding the great mortality which afflicts the new arrivals during the early years of their residence, there already dwelt in the United States 1,850,000 natives of Ireland. At the present time the American citizens of Irish origin cannot be less than six or seven millions, and the enemies of England have often looked to this multitude when desirous of provoking a war between her and the American Republic. The Irish Americans maintain relations with their fellow-countrymen in the old country, even after they have become citizens of the United States, and during the seventeen years which followed the great exodus they sent no less a sum than £13,000,000 in order to enable their relatives to join them in their new homes.

Irishmen unable to emigrate can at least periodically migrate to the neighbouring island, where they assist in the harvest and other agricultural operations. During certain seasons of the year their help can hardly be dispensed with, and

* Sullivan, "New Ireland."

† Decrease of the population of Ireland, 1834—1871:—

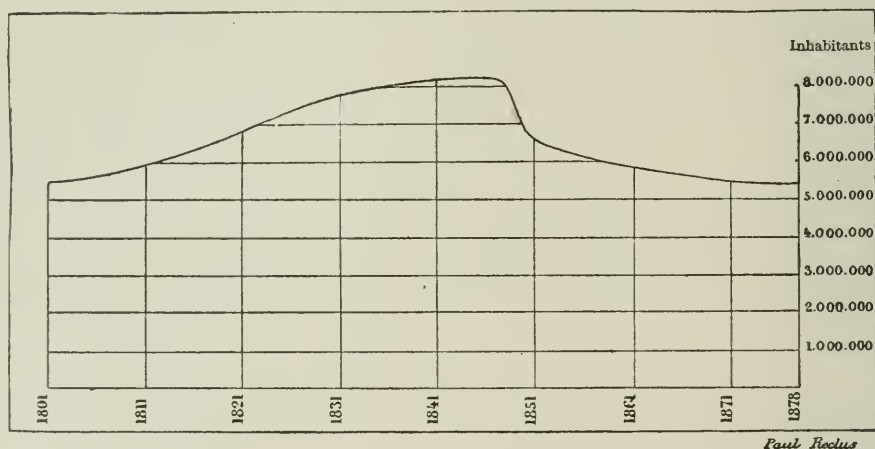
	Total Population.	Catholics.	Anglicans.	Presbyterians.
1834	7,954,100	6,426,060	833,160	643,058
1841	8,175,125	6,614,000	874,000	652,000
1861	5,798,967	4,505,165	693,357	523,291
1871	5,412,377	4,150,867	667,998	558,238
Decrease per cent. since 1834	32·0	38·6	21·7	13·0

‡ Dufferin, "Irish Emigration and the Tenure of Land."

§ Arthur Young, "Tour in Ireland."

the wages which they receive in England are at least double or treble those which they could earn in their own country. They are consequently able to return to their families with a modest sum saved out of their earnings, after defraying the expense of twice crossing the Channel. Most of these migrants annually flock to the same districts, and are employed by the same farmers. But the number of Irishmen who migrate with their families to England and Scotland, with a view to permanently remaining there, is also large.* Indeed, the Irish element in the population of Great Britain is far more considerable than it appears to be from the census returns, which take note only of persons born in Ireland, and include the children of Irish parents born in England among the rest of the population. Every large town has its "Little Ireland"—always an inferior quarter, with wretched tenements and ill-kept streets. There poor Paddy, a hewer of wood and carrier of water, has established his new home. His services have become almost indispensable, for he is often the only labourer who will consent to carry a burden or to dig. He might grow wealthy, if it were not for his improvidence, and

Fig. 201.—MOVEMENT OF THE POPULATION IN IRELAND.



although he generally marries among his own kin, his presence must in the end displace the Anglo-Saxon element in our labouring class, which is almost daily sustaining losses through emigration.

Ireland itself has grown in wealth in the course of the last twenty years. Many estates of impoverished landowners have been thrown into the market through the operation of the Encumbered Estates Court, and purchased by wealthy tenant farmers or English or Scotch colonists. And this new class of owners generally resides upon the land, instead of spending its revenues at Dublin or abroad. A further increase in the number of landowners has been brought about through the sale of a portion of the land formerly owned by the disestablished

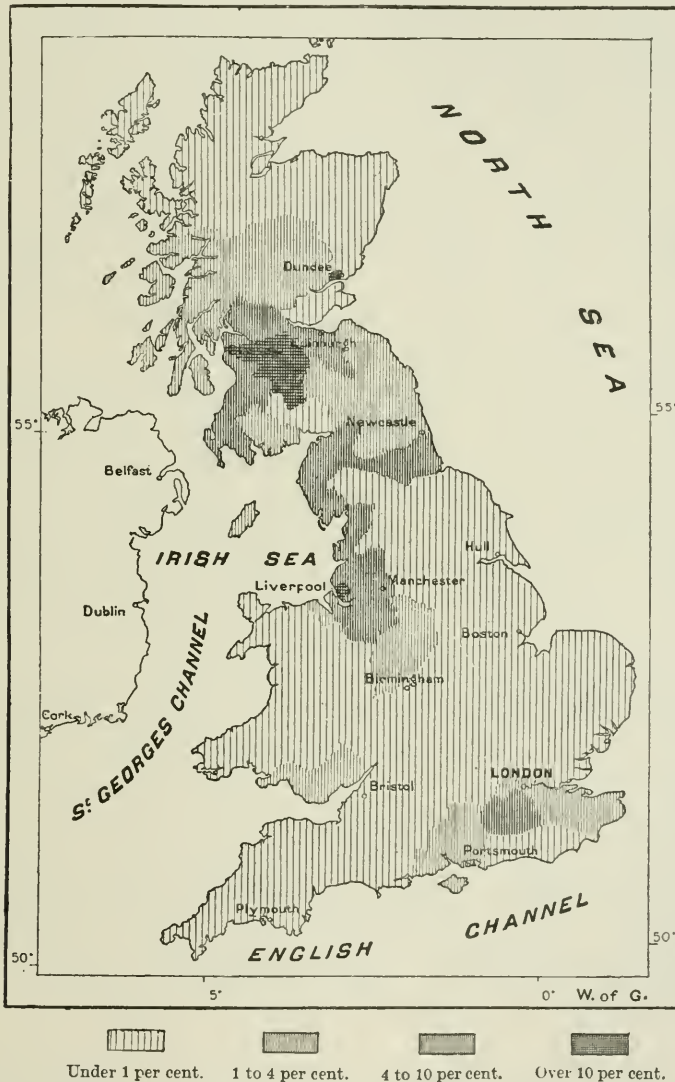
* Natives of Ireland residing in Great Britain :—

	1841.	1871.
England	292,935	566,540
Scotland	126,321	207,770
Ireland	—	5,306,757

Irish Church. At the same time the number of occupiers has grown less, and the extent of their holdings more considerable, though even now the subdivision of the land, more especially in Galway and Mayo, is carried to a greater length than

Fig. 202.—DISTRIBUTION OF NATIVES OF IRELAND IN GREAT BRITAIN.

According to E. G. Ravenstein.



is compatible with good and profitable farming.* By virtue of the famous Land

* Number of holdings in Ireland:—

		Holdings above 1, but not exceeding 5 Acres.	5 to 15 Acres.	15 to 30 Acres.	30 Acres and over.	Total.
1841	.	310,436	252,799	79,342	48,625	691,202
1851	.	88,083	191,854	141,311	149,090	570,338
1879	.	65,269	162,233	136,649	161,749	525,900

In the latter year there were 50,140 holdings of less than an acre, in addition to the above. The total number of "occupiers" was only 528,275, for in many instances landholders occupy more than one farm.

Act of 1870 tenants can no longer be evicted unless the landowner is prepared to compensate them for any "improvements" they may have made. This does not, however, hold good in cases where tenants are unable or unwilling to pay the rent agreed upon, and the evictions recently enforced have led to a renewal of the land agitation, and to a demand for the abolition of landlords, and the creation of peasant proprietors, or at all events for fixity of tenure at a rent considered fair by the occupier. This agitation has unfortunately resulted in agrarian crimes and murders, which it had been hoped were things of the past in Ireland. Yet, comparing the Ireland of 1841 with that of 1880, the great progress in its agriculture is undeniable. Since 1851 there has been a wonderful increase in the number of cattle and sheep,* and the supplies forthcoming for the English market are increasing with every year, whilst the sums received in return are divided amongst a smaller number of people. We are not, perhaps, wrong in assuming that the average income of Ireland is now about double what it was in the middle of the century. Erin, in its economical conditions, is, in fact, rapidly being assimilated with Great Britain.

In both islands, however, there are still thousands who depend upon charity for their means of subsistence. True, Irish towns in which the persons living in the workhouse are more numerous than those who are called upon to maintain them are no longer to be found; nor, as was the case a generation ago, are there now parishes where 4,000 inhabitants own between them only 10 mattresses and 8 paillasses.† Hunger typhus no longer decimates the population, even though the potatoes should fail for a season; but the want of proper nourishment and the almost total disregard of sanitary laws nevertheless shorten the lives of entire populations. Wretched mud cabins, filled with the biting smoke of peat, and inhabited by ten or twelve human beings, who sleep on the damp soil by the side of their pigs, are still numerous. Along many parts of the coast the inhabitants eat seaweed, not by any means as a relish with their salad, as is done by the wealthy citizens of Belfast, but because their gardens and plots of arable land do not yield sufficient to satisfy their wants. Through a strange irony of fate, the poorest Irishmen take most delight in dressing in swallow-tailed coats and breeches, and in wearing black hats. Whole ship-loads of cast-off garments of this description are annually sent across the Channel. The clothing produced in the country itself is coarse, but exhibits in its cut a considerable degree of good taste.

All the large towns of Ireland lie on the sea-coast. Situated near England and Scotland, and at the western extremity of Europe, Ireland failed to create a great capital in the interior of the island. Her centres of civilisation naturally

* Live stock :—

	1851.	1879.
Horses and Mules	543,312	596,890
Cattle	2,967,461	4,067,778
Sheep	1,122,128	4,017,903
Pigs	1,084,857	1,072,185

† George Hill; Mr. and Mrs. Hall, "Ireland;" Amédée Pichot, "L'Irlande et le pays des Galles."

Scale 1 : 85,000

DUBLIN BAY



sprang up on that side of her seaboard which presented the greatest facilities for keeping up an intercourse with the commercial countries from which a double channel separates her. In this feature of her political geography Ireland resembles Spain, but the causes which have had the same effect in both countries are different. In the Iberian peninsula the inhabitants principally crowd the seashore because of the cold and sterility of the plateaux and mountains which fill the interior of the country. In Ireland it is the necessity of commercial intercourse which accounts for the existence of busy seaport towns, the vast bogs of the central plain, which were formerly hardly passable, contributing, no doubt, in a certain measure to that result. The most flourishing seaboard is naturally that which faces England, and here, right opposite to Liverpool and Holyhead, on a spot marked by nature as the site for a great city, Dublin, the capital of the entire island, has arisen. Belfast, in the north, occupies relatively to Scotland a similar position to that of Dublin; whilst the two towns of Wexford and Waterford, opposite to the estuary of the Severn, share in the commerce with Southern England. Cork, with its admirable harbour, has actually become the great Atlantic emporium of the islands. As to Limerick, Galway, Sligo, and Londonderry, in the west and north of Ireland, they have hardly more than a local importance as outlets for inland districts.

TOPOGRAPHY.

LEINSTER.—The province of Leinster occupies the south-eastern portion of Ireland. Presenting a wide gap in its coast mountains towards England, which opened a path into the great central plain, it was first to feel the heel of Norman and Saxon invaders. Nearly the whole of this province is English now, not only in speech, but in a large measure also in blood. But the Irish tongue still lingers in the range of uplands which extends to the westward from the Mourne Mountains, and into which the natives of the soil were driven when the invaders appropriated and divided their lands. Another Irish-speaking district lies to the south-west, towards Waterford.*

The metropolitan county of DUBLIN occupies a narrow strip along the Irish Sea, which extends westward into the plains of Meath, but comprises on the south a portion of the Wicklow Mountains. Mount Kippure, on the southern border, rises to a height of 2,473 feet. The centre of the county is traversed by the Liffey, which discharges itself into Dublin Bay. The land is fairly cultivated.

Dublin, or *Ballagh-ath-Eliath-Puibhluinne*, has not always been the capital of Ireland. There was a time when the kings were crowned on the Hill of Tara, or Teamhair—that is, the “Great House”—25 miles to the westward, and antiquarians have there discovered the remains of a monument, from which was, perhaps, taken that Stone of Fate (*Saxum Fatale*) which, after having long been kept in the abbey of Scone, has found a last resting-place in Westminster Abbey. When the

* In 1851 52,868 persons in Leinster spoke Irish; in 1871 only 14,388.

legitimate king sat down upon this stone, so says the legend, it resounded like the voice of thunder, but it gave forth no sound for a usurper : since the introduction of Christianity it has lost its virtue. But whatever may have been the dignities conferred upon Tara, Dublin, or "Blackwater," was certainly superior to the little inland burgh as a place of commerce. For over two centuries Danes and Northmen—good judges of maritime positions—disputed its possession with the Irish. The Irish names of two suburbs of the town still recall the sites which in these early days were occupied by "black and white strangers;" that is, by Northmen and Danes. In the beginning of the twelfth century Dublin was finally wrested from the Scandinavians, only to fall soon afterwards into the hands of the English, to whom it has belonged ever since. According to the vicissitudes of politics, Dublin has known its periods of prosperity and decay. Early in the seventeenth century it was the second town of the British Islands—as populous, with its 300,000 inhabitants, as were then Edinburgh and Bristol together. It sustained a great loss in 1800, when a separate Parliament for Ireland ceased to exist, and subsequently it suffered further injury through the misery entailed by the great famine and emigration. These losses, however, have since been more than made good.

As an industrial city Dublin enjoys some reputation for its poplins—the manufacture of which was introduced by the French—stout, whiskey, and a variety of other articles. Within the last few years a most active provision trade with England has sprung up. Dublin exports cattle, pigs, and various kinds of agricultural produce, and imports merchandise for its own use and that of a great part of Ireland. Railways converge upon it like the ribs of a fan, besides which it is the terminus of the Grand Canal, which cuts the island in twain, and joins the Irish Sea to Galway Bay. Formerly the roadstead of Dublin, exposed to easterly winds and cumbered with sand-banks, presented great difficulties to large vessels, and the mouth of the Liffey formed only an inconvenient port, although docks had been excavated by its side. But the extension of the northern pier has led to the partial disappearance of the obstructive sands, and vessels drawing 23 feet of water can now proceed to the quays of the town. Dublin, like other maritime cities, is indebted to the skill of engineers for two outlying ports. That of Kingstown, on the southern side of Dublin Bay, is conspicuous from afar through the abrupt face presented by the hill in its rear, which has furnished the granite for its piers. It is the station for the packet-boats, which twice daily carry mails and passengers to Holyhead. The harbour of Howth, on the northern side of the bay, is frequented only by fishing-boats. Constructed, it is said, to facilitate the exportation of the granite quarried by a great lord, it is almost dry at low water, and, moreover, difficult of access. Dublin, with its outports, takes a prominent place amongst the maritime cities of the British Islands, ranking next to London, Liverpool, Newcastle, Cardiff, Glasgow, and Hull.

In shape the city resembles an oval, bisected by the Liffey, and almost surrounded by canals. There are a few fine streets and open squares, equal to any in

England, besides several remarkable buildings, for the most part grouped around the hillock upon which rises Dublin Castle, the official residence of the Lord-Lieutenant of Ireland. Christ Church Cathedral, restored to the Roman Catholics, is the most ancient church of Dublin, having been founded in 1028, and rebuilt at the end of the twelfth and in the course of the fourteenth centuries. St. Patrick's Cathedral, which has been taken possession of by the Protestants, is likewise a mediæval building, and stands by the side of the fountain from which St. Patrick baptized the heathen. Trinity College was founded in the sixteenth century as a stronghold of Protestantism, but no longer enforces religious tests. It possesses valuable natural-history collections, together with a library of over 200,000 volumes, containing amongst other treasures the *Senchus Mór*, or monument of ancient wisdom, and various mediæval manuscripts in Irish and Latin. The

Fig. 203.—VIEW OF DUBLIN FROM PHOENIX PARK.



Exhibition Palace of 1872 has been transformed into a museum and place of amusement similar to the Crystal Palace at Sydenham. There are also an Industrial Museum, a National Gallery, and other valuable collections belonging to learned societies. Conspicuous amongst the buildings on the northern bank of the river are the "Four Courts" rising into a lofty dome, and the Custom House. Among charitable institutions may be mentioned the Royal Hospital for soldiers, in the suburb of New Kilmainham, the Blue Coat School, and Steevens's Hospital. *Pembroke*, *Rathmines*, and *Rathgar*, with *Donnybrook*, in other times famous for its fairs, are suburbs of Dublin. Swift, Richard Steele, Sheridan, Tom Moore, and the Duke of Wellington were born at Dublin, and monuments have been raised in honour of them and other Irish worthies.

The environs of the great city abound in pleasant walks. Phoenix Park, which includes a zoological garden, covers an area of 1,750 acres. It is finely timbered,

and bounding deer are plentiful within it. The fine botanical gardens at *Glasnevin*, north from the city, are the property of the Royal Society. On the northern side of Dublin Bay is *Clontarf*, famous as the scene of Brian Boromhe's victory over the Danes, with an old Norman stronghold. Farther in the same direction the entrance to the bay is guarded by the rocky peninsula of *Howth* (563 feet), with shaded woods, the ruins of an abbey overhanging the sea, and a magnificent view over the bay. The people of Dublin often liken their bay to that of Naples, although there is no Vesuvius screened by a Somma, and encircled with white and pink villas, and the sky above is rarely as bright as that of the Mediterranean. Opposite Howth we perceive *Kingstown*, with its harbour covering 250 acres, and virtually a suburb of Dublin. *Blackrock*, a famous bathing-place, adjoins it on the left; *Dalkey*, an important seaport before Kingstown usurped its place, lies to the south; and *Killiney*, with its mountain of granite, upon whose sides quarrymen swarm like ants, is beyond.

To the north of Howth are the fishing villages of *Malahide*, *Rush*, and *Skerries*. *Balbriggan*, with a small port, is noted for its stocking manufacture. *Lusk*, *Swords*, and *Clondalkin*, all within a few miles from the coast, can still boast the possession of round towers; whilst *Finglas*, to the north of Dublin, and *Lucan*, on the Liffey, have mineral springs.

The county of *Louth* includes the hilly peninsula between Carlingford Lough and Dundalk Bay (1,955 feet), and the low-lying maritime region which extends thence to the river Boyne. That river is born in the Bog of Allen, and only washes one large town on its way to the sea, namely, the ancient city of *Drogheda*, 4 miles above its mouth. The town is for the most part seated upon the lofty northern bank of the river, here spanned by a railway viaduct 94 feet in height. Its docks are accessible to vessels of 300 tons burden, and there are a large cotton-mill, flax-mills, and other industrial establishments. The battle of the Boyne, which cost the Stuarts a throne, was fought in the immediate vicinity in 1690. A little above the field of battle, near the river, are curious prehistoric remains, including the sepulchral tumulus of New Grange, which Lihuyd, the antiquarian, laid open in 1699. *Termonfeckin* is now a favourite watering-place, but was formerly the residence of the Archbishop of Armagh. *Dundalk*, on a flat site at the head of a wide bay and the mouth of Castleton River, with a port accessible to vessels drawing 16 feet of water, is an ancient city, where Edward Bruce was crowned King of Ireland, and near which he was defeated and killed by the English (1318). Dundalk distils whiskey, brews beer, spins flax, grinds corn, and makes pins, but its commerce is inferior to that of Drogheda. *Louth*, to the south-west of it, which gave its name to the county, is a decayed village. *Ardee* and *Collon* are market towns in the interior of the county. *Carlingford*, on the lough of the same name, has oyster beds, and grows in favour as a watering place.

MEATH forms part of the central plain, with a few detached groups of hills. It is drained by the river Boyne and its tributary, the Blackwater. At the confluence of the two rivers stands *Navan*, the most populous town of the county, and an episcopal city, with a Catholic college. *Trim* and *Clonard*, an old episcopal

see, are higher up, on the Boyne; *Slane*, a poor village, with the ruins of a castle and a monastery, is below. Half-way between Navan and Trim are the beautiful ruins of Bective Abbey. *Kells*, a flourishing market town on the Blackwater, has a round tower on Lloyd Hill (422 feet). In the southern part of the county are the Hill of *Tara* (see p. 411) and the decayed town of *Dunshaughlin*.

WESTMEATH, like its neighbour, lies within the central plain, and its detached heights attain no considerable elevation. Its main portion drains into the Shannon, which forms the western boundary. There are numerous lakes scattered all over the county. *Mullingar*, the county town, on the Royal Canal, and in the vicinity of a cluster of lakes rich in trout, has fairs for horses and cattle, and much trade in agricultural products. *Athlone*, seated astride the river Shannon, near where it issues from Lough Ree, spanned by a railway viaduct and a fine stone bridge, is a place of considerable strategical importance, for it guards the passage from Leinster into Connaught. Its castle is old and strong, and beside it stand barracks for a large garrison. As is often the case in Ireland, there are a clean "new town," inhabited by men of Saxon race, and a wretched "Irish town." *Auburn*, or rather *Lishoy*, which Oliver Goldsmith describes in his "Deserted Village," is in the neighbourhood. The only other places of note in the county are *Moate-a-Grénogue*, on the southern border, and *Kilbeggan*, on the Brosna, which issues from Lough Ennell.

The county of LONGFORD lies almost wholly within the basin of the Shannon, which washes its western margin; but its northern portion, where Lough Gowna covers a large area, drains into the Erne. *Longford*, on a branch of the Royal Canal, is the seat of a Catholic bishop. Near it are *Ardagh*, a poor village, after which one of the dioceses of Ireland is named, and *Edgeworthstown*, a pretty village in a flat country, the birthplace of Maria Edgeworth. *Ballymahon* is a market town on the Inny, which flows through the southern part of the county. *Granard*, on the water-parting between Inny and Erne, has a small linen trade.

KING'S COUNTY, and its neighbour Queen's County, were named in honour of Philip II., of Spain, and his consort Queen Mary, during whose reign they were first formed. The bulk of King's County consists of a plain descending towards the Shannon and Liffey, dotted over with a few hills, including the Croghan (761 feet), and culminating towards the south in the Slieve Bloom. The Grand Canal intersects the county from east to west. *Tullamore*, on a river flowing to the Shannon, *Philipstown*, and *Edenderry* all lie on the Grand Canal, and on the northern margin of the Bog of Allen, large portions of which have been drained. On the Shannon are *Shannon Bridge*, with an old fort; *Shannon Harbour*, at the mouth of the Grand Canal, with marble quarries; and *Banagher*. Above Shannon Bridge are the ruins of the seven churches of *Clonmacnoise*. *Parsonstown*, on the Birr, a small tributary of the Shannon, is perhaps the prettiest town in the county. Near it lies Castle Birr, with Lord Rosse's famous telescope.

QUEEN'S COUNTY lies on the southern slope of the Slieve Bloom, and along the Upper Barrow (which rises in it) and the Nore. *Maryborough*, the

county town, stands on the river Triague, which is tributary to the Barrow. Near it is the rock of Dun-a-mase, with remains of the stronghold of the Kings of Leinster. *Portlington*, on the Barrow, was originally founded with the aid of French and German Protestants. *Mountmellick*, at the foot of the Shieve Bloom, has a cloth-mill and a foundry. *Mountstich*, only founded in the seventeenth century, is the principal town in the valley of the Nore. It manufactures a little cloth. Other places on the Nore are *Barrit-in-Owery*, anciently the seat of a bishop, *Abbeypix*, *Durrow*, and *Balrathkilly*.

The county of KILDARE forms part of the central plain, and is drained by the rivers Liffey and Barrow. The Bog of Allen occupies a considerable area in the north, but much of it has been drained and brought under cultivation. In its midst rises the Hill of Allen, according to the Irish tradition Ossian's real home. The village of *Maynooth*, with St. Patrick's College, founded in 1795 for the education of the Catholic clergy of Ireland, and Carton Castle, the sumptuous seat of the Duke of Leinster, lies near the northern boundary of the county, on the Royal Canal. Ascending the Liffey, we successively pass *Cobridge*, *Naas*, *Newbridge*, and *Kilcullen*, enclosed by a ring-shaped rampart. Naas, one of the ancient capitals of Leinster, has a rath in its centre upon which the Parliament of the kingdom used to deliberate. Newbridge has the ruins of an abbey and cavalry barracks. The Curragh of Kildare, a famous sheep-walk and racecourse, 4,858 acres in extent, lies to the west of it, in the direction of the ancient city of *Kildars*, whilom "renowned for its saints," as is attested by the ruins of a cathedral and a fine round tower, but now a poor village. In 1804 the United Irishmen mustered their forces, to the number of 30,000 men, upon the Curragh, which is now the site of a standing military camp.

On the Barrow are *Monasterenan*, with the ruins of an abbey, and *Athy*, a flourishing market town, with a cloth factory. *Ballymore*, in a side valley of the Barrow, used formerly to be inhabited by Quakers.

The county of WICKLOW, with its range of bold mountains culminating in Lugnaquilla, differs altogether from the flat and uniform stretches in the interior of the island. No valleys of Ireland are more deservedly frequented by tourists than those of the Dargle, Vartry, and Avoca, which rise in these mountains, and at whose mouths are seated the three principal towns of the county. *Brag*, at the mouth of the Dargle, is a favourite watering-place. *Wicklow*, at the mouth of the Vartry, has an indifferent harbour. Copper and lead are mined in the neighbourhood. *Arklow*, at the mouth of the Avoca, consists of a fine upper town and a poor "Fishery." The harbour is closed by a bar. Herring and oyster fishing and mining are the principal occupations. Tourists make this town their head-quarters when desirous of exploring the scenery of "sweet" Avoca, ascending which they visit successively the copper mines: the "Meeting of the Waters" under Castle Howard; *Rathdrum*, formerly noted for flannels; the ruins of Castle Kevin and the seven churches; *Annamoe*; and Lough Dan. On the western slope of the mountains are *Baltinglass*, *Tinahely*, and *Shillelogh*.

The county of WEXFORD forms the south-easternmost corner of Ireland. The coast is for the most part low. The interior consists of an upland, upon which rise isolated hills. The river Slaney traverses the centre of the county, whilst the Barrow bounds it on the west. *Wexford*, at the mouth of the Slaney, is seated on a magnificent bay, and carries on a considerable trade, notwithstanding that its harbour is closed by a bar admitting no vessel over 200 tons burden. It was here that the English first secured a footing upon Irish soil, and concluded their first treaty, in 1169. The square keep of Carrick Castle, built about that time, still remains. *Enniscorthy*, at the head of the navigation of the Slaney, is built on the side of a steep hill. A little cloth is manufactured, besides which there are breweries, distilleries, and flour-mills. Higher up in the valley are the mineral springs of *Newtown Barry*. In the north-eastern part of the county are *Cortown*, a fishing village, and *Gorey*, an inland market town. Bannow Bay, on the south coast, is said to mark the site of a flourishing town, which was swallowed up by the sea. There are ruins of ecclesiastical buildings at its head; whilst *Fethard*, a poor fishing village near its mouth, boasts the ruins of a Tintern Abbey, founded in 1200, and named after the famous abbey in Wales, from which it was peopled. The principal town on the Barrow is *New Ross*, which vessels of 800 tons burden can reach with the tide. There are distilleries and flour-mills. It was near this place that, during the rebellion of 1798, an undisciplined crowd of 20,000 Irishmen was routed by a handful of English troops. The atrocities committed during this rebellion by the peasantry in the county of Wexford defy description. *Duncannon*, a fishing village on the eastern side of Waterford Harbour, is defended by a fort.

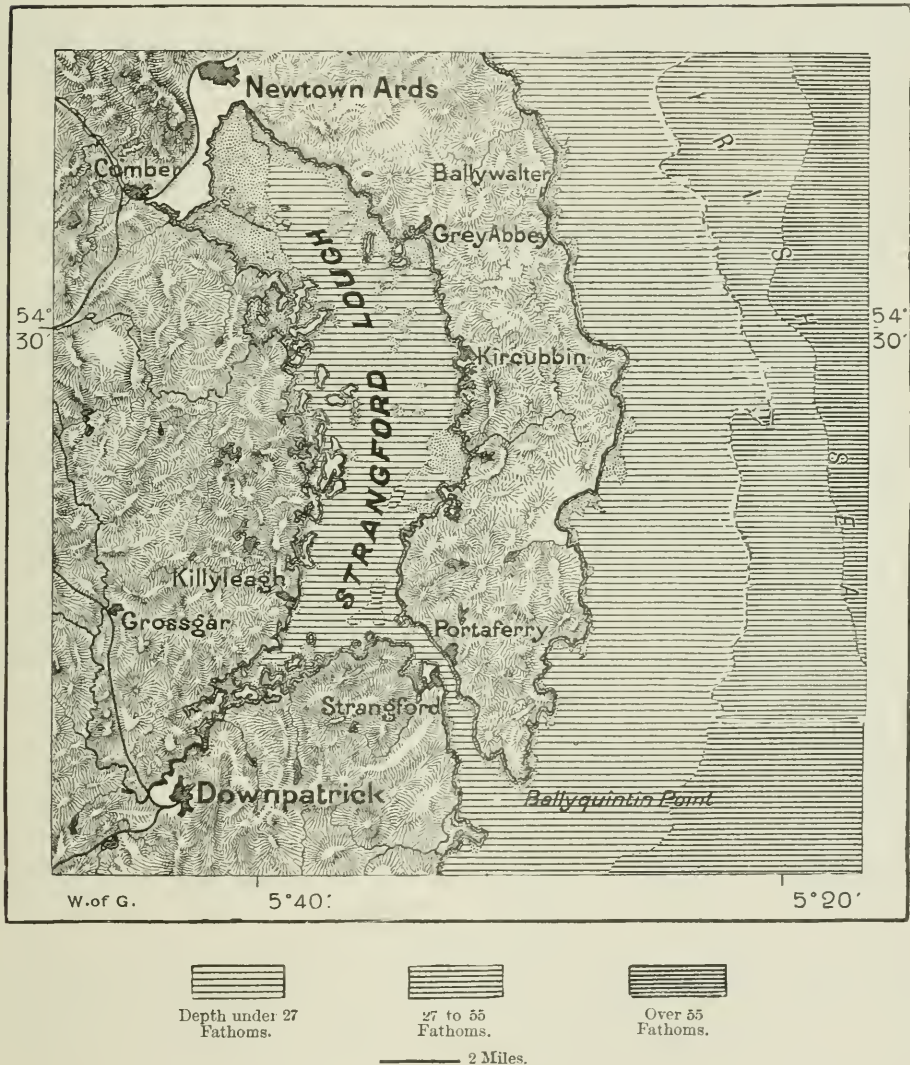
The county of CARLOW is for the most part a fertile plain, shut in between the hills of Wicklow and Kilkenny, and drained by the rivers Barrow and Slaney. *Carlow*, on the former of these rivers, is a handsome town, with a Catholic cathedral and college. *Bagnalstown* is lower down on the same river. *Leighlin-bridge*, with the ruins of Blackrock Castle, and *Old Leighlin*, with a cathedral of the twelfth century, are in its neighbourhood. *Tullow* is the principal town on the Upper Slaney, which lower down flows past Enniscorthy and Wexford.

The county of KILKENNY lies to the west of the Barrow. The Nore traverses its centre, and the Suir bounds it in the south. The surface is mostly hilly, but there occur also extensive plains, in the midst of one of which, on the banks of the Nore, stands the county town of *Kilkenny*. On a rock in its centre rises a castle built in the twelfth century, and now the residence of the Marquis of Ormonde. Coarse woollen stuffs are manufactured, but the Kilkenny of to-day is only a shadow of its former self, as is attested by its numerous ruins. *Thomastown*, also on the Nore, is the birthplace of Father Mathew. Near it are the ruins of Jerpoint Abbey. Coal is worked in the northern part of the county, near *Castlecomer*. In the valley of the King's River lie *Kells*, founded by a follower of Strongbow, but now a wretched village, and *Callan*. *Johnstown* and *Urlingford* lie to the north-west.

River, has been raised solely through its industry to the eminent position it holds among the maritime towns of Ireland ; for its harbour does not give access to large vessels, which stop at *Warrenpoint*, romantically seated on the northern bank of the lough. Below the latter, and right at the foot of the Mourne Mountains, is

Fig. 205.—STRANGFORD LOUGH.

Scale 1 : 300,000.



Rosstrevor, a watering-place, whose popularity is, however, eclipsed by that of *Newcastle*, on Dundrum Bay. The narrow entrance to Strangford Lough is guarded by the fishing villages of *Strangford* and *Portaferry*. The lough, however, is not much frequented by shipping. *Downpatrick*, the county town, near its south-western side, notwithstanding its English, Scotch, and Irish quarters, is not a place of much industry, whilst the large manufacturing town of *Newtownards*, finely

seated at its northern extremity, prefers to export its produce through the neighbouring *Donaghadee*, which has the advantage of lying on the open sea. *Comber*, on the north-western side of the lough, is only a small place with a little linen trade, like all the other towns of the county. *Bangor* and *Holywood* are pleasant watering-places on the Belfast Lough.

Banbridge, on the river Bann, which flows to Lough Neagh, is the centre of the inland portion of the county. It is built on the steep declivity of a hill, with footpaths often raised 25 feet above the pavement. Here and at *Gilford*, *Dromore*, and *Hillsborough* the manufacture of linen is the staple trade. Near *Gilford* is Tanderagee Castle, the seat of the Duke of Manchester, whilst *Dromore* was formerly the residence of a bishop.

The county of ANTRIM forms the north-eastern extremity of Ireland, and consists of a volcanic table-land, forming bold cliffs along the coast, and sinking down inland toward the plain bordering upon Lough Neagh and the river Bann. It is the centre of the Irish linen industry.

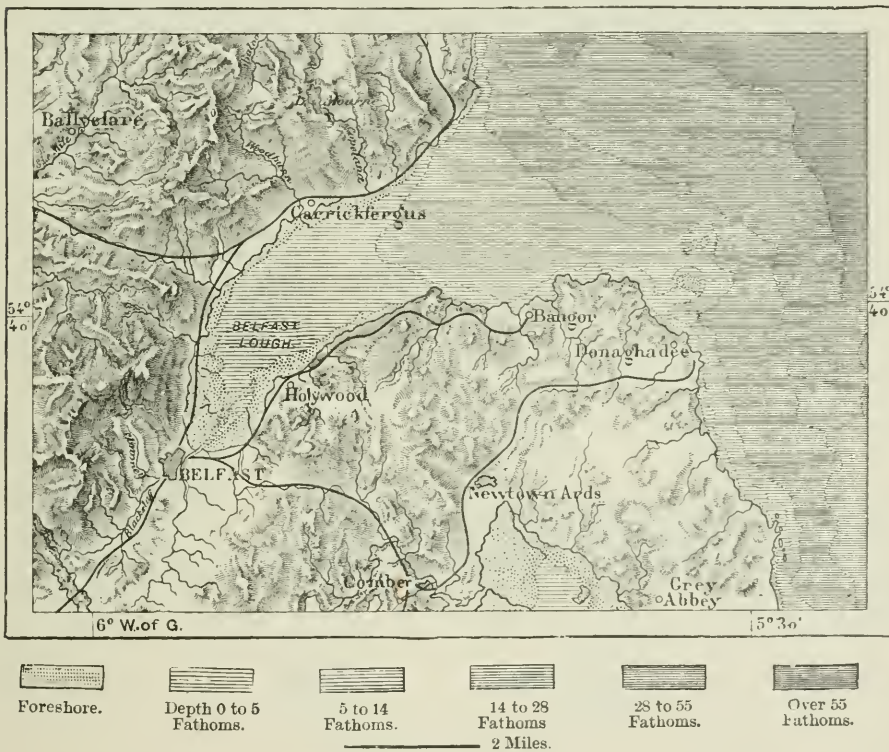
Belfast, its capital, is the chief city of Ireland for its industry, though not the first in population. In 1612 the land upon which this flourishing city has arisen was given by James I. to one of his favourites, whose descendant, the Marquis of Donegal, still owns the whole of it, with its palatial warehouses, factories, and suburbs. Belfast, of all Irish towns, increases most rapidly in population. About the middle of the seventeenth century it only had 7,000 inhabitants; in 1821, 37,000; and at present about six times that number. Its shipping has increased even at a more rapid rate, and Belfast is now abreast of Dublin, if not in advance of it. As the narrow river Lagan afforded but scant shelter for shipping, docks have been constructed, and a cut was formed in 1840 through sands cumbering the lough, by which means vessels drawing from 16 to 20 feet of water can now come up to the town with the tide. Most of the trade of the port is carried on in steamers.

It is the linen trade, very ancient in the country, but much developed by Flemish and French immigrants, which has made Belfast a prosperous city, and of all its factories those devoted to the spinning and weaving of flax are still the most important. A society for the Promotion and Improvement of the Growth of Flax in Ireland has its seat in Belfast, and to its beneficial action must be ascribed the fact that most of the raw material consumed in its factories is grown in the country of which it is the industrial centre. In addition to flax-mills, there are cotton factories, foundries, machine shops, and large establishments in which the fancy boxes intended to hold Irish lace and other delicate textiles are made. Belfast, at the same time, can boast important institutions for the education of the people. It has its Museum and Botanical Garden, its non-sectarian Queen's Colleges, and colleges of the Presbyterian and Methodist communities. Yet, notwithstanding these educational agencies, there is no town in Ireland where "assault and battery" is a more frequent offence, and the anniversary of the battle of the Boyne rarely passes without opposing mobs of Orangemen and Catholic Home Rulers coming to blows.

The merchants of Belfast have studded the surrounding heights with villas, and several villages, such as *Legoniel*, have become suburbs of the ever-spreading city. Others, as *Lisburn*, on the Lagan, and *Moirá*, are industrial dependencies. *Carrickfergus*, on the northern shore of the lough, is the ancient capital of the surrounding country, and in early days its picturesque castle was one of the principal strongholds of Ireland. At its foot William III. embarked when about to rout the army of his father-in-law; and subsequently, in 1759, Thurot, the Frenchman, held possession of it for three days. Carrickfergus, in addition to its linen trade, possesses a resource in the salt mines near it. *Larne*, at the mouth of a small lough to the north of that of Belfast, is an outport of the

Fig. 206.—BELFAST LOUGH.

Scale 1 : 172,000.



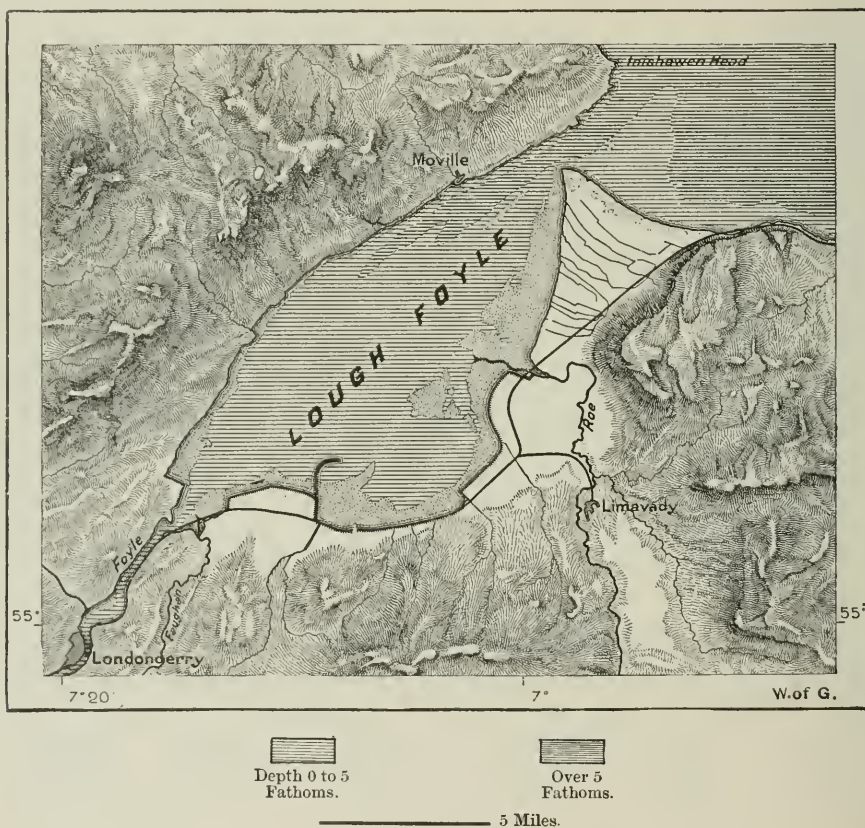
great city of Ulster. Along the coast are the fishing and watering places of *Glenarm*, *Cushendun*, and *Ballycastle*. If the latter has not grown into a large manufacturing town, it is not the fault of its late owner, who founded glass houses, tanneries, and breweries, built a quay, erected four churches, and endowed several charities. Near the town are curious coal-pits, now abandoned, and off it, at a distance of 5 miles, lies Rathlin Island. *Bushmills*, an old town where spades and hoes are made, lies about a mile up the river Bush, to the west of the Giants' Causeway (see p. 384). On the coast Dunluce Castle rises on an almost insulated cliff. *Portrush*, on the north-western border of the county, is the port of the manufacturing town of *Coleraine*, which stands 4 miles above the mouth of the Bann,

spanned by a bridge 288 feet in length. Coleraine belongs to the county of Londonderry.

Ballymoney is the most important town of Antrim in the valley of the Bann, but lags far behind *Ballymena*, on a small tributary of the Main, which takes its course direct into Lough Neagh, entering it near the old county town of *Antrim*. *Ballymena* is one of the most important flax and linen markets in Ireland. Near it is *Gracehill*, a Moravian settlement founded in 1765. *Antrim*, on the other hand, is a place of little note, except for its castle, its round tower,

Fig. 207.—LOUGH FOYLE.

Scale 1 : 350,000.



and the ruins of Shane's Castle, picturesquely seated on the shore of the lake.

The county of LONDONDERRY occupies only a narrow seaboard between the river Bann and Lough Foyle, but expands in the south, where it stretches as far as Lough Neagh. The greater portion of its area is covered with moorland hills, but fertile tracts extend along the valleys and the coast. *Londonderry*, the county town, on the river Foyle, is one of the most picturesque places in Ireland, still surrounded by its ancient walls, which enclose a hill upon whose summit stands the cathedral. Formerly plain Derry, the city took its present name when James I. presented it, together with the surrounding country, to the twelve great livery

companies of London, to whom it still belongs. A Doric column commemorates the glorious siege of 1689. A few miles to the westward of Londonderry, already beyond the borders of the county, are the Grianan of Aileach, remarkable as a specimen of the fortifications erected by the ancient Irish. On the western shore of Lough Foyle are *Moville*, a rising watering-place, and *Greencastle*, where the outward-bound American mail-packets call for telegrams. The railway which skirts the eastern shore of the lough runs for a considerable distance along an embankment raised upon land formerly flooded by the sea, but now drained and brought under cultivation. *Newtown Limavady* and *Dungiven* are on the Roe, which descends from the Sperrin Mountains and flows into Lough Foyle. *Coleraine*, on the Lower Bann, has already been referred to. It has for its outports *Port-stewart* and *Portrush*. Higher up on the Bann is *Kibrea*, and near Lough Neagh *Magherafelt*. All these towns of Londonderry largely depend for their existence upon the linen industry.

TYRONE is an inland county, stretching from the Donegal Mountains to Lough Neagh and its tributary, the Blackwater. It is traversed by the Foyle, or Strule, and for the most part covered with hills, except in the east, where an extensive plain of considerable fertility lies along the shore of Lough Neagh. *Omagh*, the county town, stands on the river Strule (the Upper Foyle) in a fertile district, and carries on trade in corn and linen. *Newtown Stewart*, at the head of the navigation of the river, is a small manufacturing village; whilst *Strabane*, the most populous town of the county, owes its prosperity entirely to the linen trade. In the plain bordering upon Lough Neagh are *Cookstown*, with flax-mills; *Stewartstown*, with limestone quarries; and *Dungannon*, with collieries at Coal Island. *Clogher*, an episcopal village, and *Aughnacloy* are on the Blackwater.

The county of ARMAGH slopes from the barren mountains near the coast to the fertile plain at the head of Lough Neagh. *Armagh*, the seat of the Protestant primate of all Ireland and of a Catholic bishop, is one of the most celebrated and beautiful cities in the country. It is built on a hill, and its ancient cathedral, founded by St. Patrick, looks down upon the amphitheatre formed by its marble houses. Near it is a famous observatory, founded in 1789 by Primate Robinson. *Keady*, to the south of Armagh, is a small manufacturing town. *Portadown*, on the Upper Bann, is favourably situated for commerce, as a canal connects it with Newry, and through the Bann and Lough Neagh with Enniskillen. *Lurgan*, to the east of the Bann, is the principal seat of the linen trade in the county.

The county of MONAGHAN is intersected in its centre by a vale, through which passes the Ulster Canal, and which the Inny drains into the Erne, and the Blackwater into Lough Neagh. Lofty hills, culminating in Slieve Beagh (1,258 feet), bound this vale in the north, and a somewhat lower range separates it from the maritime plain of Louth. *Monaghan*, in the centre of this vale, has a little trade in flax and corn, whilst *Clones*, on the Inny, is interesting on account of its monastic ruins, supposed to date back to the fifth

century. *Emyvale* and *Glasslough* are unimportant places in the north-western part of the vale. *Ballybay* is the principal town in the southern hills, while *Castleblayney* and *Carrickmacross* are more important towns on the margin of the maritime plain, the one near a lake at the head of the Fane, the other on the Glyde.

The county of CAVAN extends along both sides of the Upper Erne, which rises in Lough Gowna (214 feet) on its southern border, traverses Lough Oughter in its centre, and before leaving it enters the Upper Lough Erne. This river separates the county into two hilly portions, of which that in the west is the loftier and less hospitable. Within the latter rises the Owenmore, the head-stream of the Shannon. *Cavan*, the seat of rival bishops, lies in a fertile plain, and with *Belturbet*, on the navigable Erne, and *Cootehill*, between the Annalee and a small lough, it is the only noteworthy place in the county. *Kilmore*, a village to the south of Cavan, was anciently the seat of a bishop. *Ballyconnell*, in the western hills, is known for its romantic position.

FERMANAGH stretches along both banks of the Erne, which within its limits expands into the Upper and Lower Loughs Erne. The tract to the west of these lakes rises into lofty hills (Cuileagh, 2,188 feet), but along their western shore level tracts occur, where wheat and oats are grown with success. *Enniskillen*, midway between the lakes, on an island of the Erne, is an important military station. Cutlery and plait are made. The Portora Royal School, the "Irish Rugby," is near, and on Devenish Island, 1 mile below, there are ruins of ecclesiastical buildings and a round tower. The inconsiderable towns of *Newtown Butler*, *Lisnaskea*, and *Lowtherstown* are in the eastern portion of the county. *Belleek*, on the Lower Erne, manufactures pottery.

DONEGAL, the north-western county of Ireland, is a wild highland region (see p. 383), rich in picturesque scenery, but only to a small extent capable of cultivation. *Lifford*, the county town, is a wretched village on the Foyle, opposite Strabane. *Stranorlar*, in the valley of the Finn, tributary to that of the Bann, has become of some importance as a tourists' head-quarter. On the hilly peninsula of Inishowen, which lies between Loughs Foyle and Swilly, are *Morille* and *Greencastle*, on Lough Foyle; *Carndonagh*, at the head of Trawbeaga Bay, and near Malin Head (226 feet), the northernmost point of Ireland; and *Buncrana*, a growing watering-place, on Lough Swilly. Far more important than either of these is *Letterkenny*, at the head of the lough just named. *Rathmelton* and *Rathmullen*, on the western shore of Lough Swilly, are hardly more than fishing villages, though nominally market towns. Along the coast, facing the open Atlantic, we meet with the fishing villages of *Dunfanaghy*, on Sheep Haven; *Dunglow*, at the back of Aran and Rutland Islands; *Ardara*; and *Killybegs*. *Donegal*, on the bay of the same name, and at the mouth of the Eask, is interesting as the old capital of the county, but is a mere village, ranking far behind *Ballyshannon*, at the mouth of the river Erne.

CONNAUGHT.—This province occupies the extreme west of Ireland, between Donegal Bay and the river Shannon. Its population is the most purely Celtic of

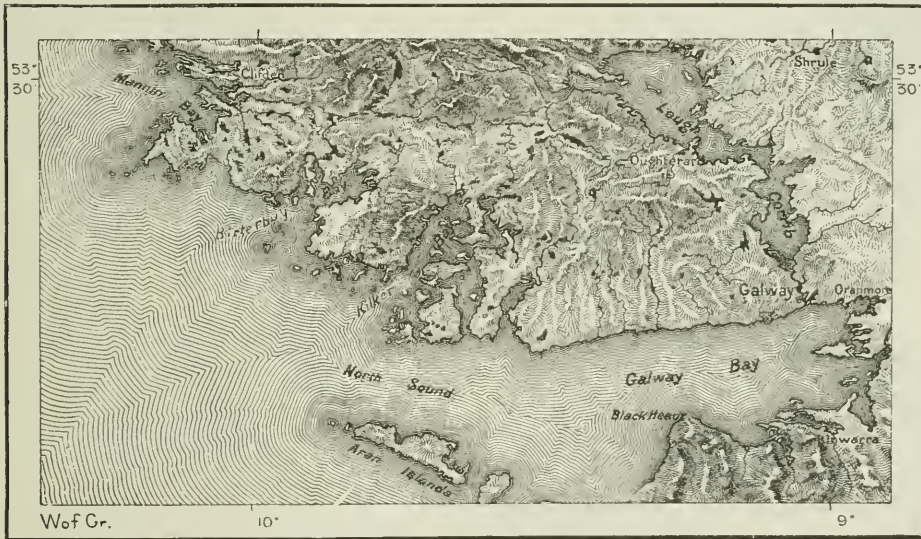
the island, if we except certain portions of Munster, and in 1871 no less than 39 per cent. of the inhabitants still spoke Irish. In no other part of Ireland is education at so low an ebb.

LEITRIM is a narrow strip of country stretching from Donegal Bay to the central plain. Lough Allen separates its northern, mountainous portion from the more level region, studded with numerous lakes, in the south. *Manor Hamilton*, in the fertile valley of the Bonnet, is the principal town in the northern part of the county. *Carrick-on-Shannon*, the county town, is merely a village, and *Leitrim*, the old capital, is even less important.

The county of ROSCOMMON forms part of the central plain. It lies beyond the Shannon, and is bounded by the Suck in the south-west. Coal is won in the extreme north of the county, on the banks of the Arigna, and near *Keadue* village. *Boyle*,

Fig. 208.—GALWAY BAY.

Scale 1 : 800,000.



on a river of the same name, is a market town. *Elphin*, farther south, is an old episcopal city. *Roscommon*, with the ruins of an abbey and a castle, manufactures coarse earthenware.

The county of GALWAY is divided by Loughs Mask and Corrib into two well-marked regions. To the west lie the wild mountain land of Joyce's Country, Connemara, and Jar Connaught ; whilst in the east a plain extends to the Shannon, broken only towards the south-east, where Slieve Aughty, on Lough Derg, rises to a height of 1,243 feet.

Galway, at the mouth of the river which drains Lough Corrib, and on the north shore of a wide bay, occupies a favourable position for commerce, and as early as the fourteenth century, soon after its foundation by an English colony, it carried on a brisk trade with Spain. Andalusians and Castilians established

quarries. *Kinvara*, on a southern arm of Galway Bay, is the seat of a Catholic bishop; and a few miles to the south of it is *Gort*, with the ruins of a cathedral.

Amongst the towns in the eastern plain *Tuam*, with its rival bishops and Catholic college, occupies the first place, but commercially, as well as in population, *Ballinasloe* can claim the precedence, on account of its great horse, cattle, sheep, and wool fairs. *Loughrea*, on a small lough almost in the centre of the plain, is a market town. *Clonfert*, an old episcopal city, and *Portumna*, at the head of Lough Derg, are merely villages.

MAYO, in its western portion, consists of wild mountain land, but to the east of Loughs Conn and Mask it extends into the central plain which stretches westward to the head of Clew Bay. All the large towns of the county lie in this more level tract. *Westport*, near Clew Bay, frowned down upon by Croagh Patrick (2,510 feet) and Cusheamcarragh (2,343 feet), and studded with innumerable islets, has a small harbour. *Ballinrobe*, on a river tributary to Lough Mask, is a decayed market-place. *Castlebar*, in the fertile valley of the Moy, which flows northward into Killala Bay, is more attractive; but most prosperous of all the towns of the county is *Ballina*, on the Lower Moy, only 7 miles from the bay, and with a port accessible to vessels of 200 tons burden. It was here General Humbert landed on the road to his barren victory of Castlebar, after which he proclaimed the Irish Republic. *Killala*, on the bay itself, is merely a fishing village, with the residence of a Catholic bishop. On Blacksod Bay, behind Mullet Peninsula, near Erris Head, are *Belmullet* and *Binghamstown*, two fishing villages.

The county of SLIGO is almost shut in by hills, which bound a beautiful plain opening upon Sligo Bay. Upon an arm of this bay stands *Sligo*, the county town, largely engaged in the salmon fishery and coasting trade. On another arm, at the mouth of the Owenmore, rises *Ballysadare*, a fishing village, with limestone quarries. On the upper course of that river is *Ballymote*, with the ruins of an abbey, and near it *Achonragh*, the residence of a Catholic bishop.

MUNSTER.—Munster comprises the whole of South-western Ireland, from Galway Bay to Waterford, and is richer in fine harbours than any other part of Ireland. Within it lie some of the finest mountains of the island, and several of its most productive vales. Irish is still largely spoken in the counties of Waterford, Kerry, Clare, and Cork—altogether by about a fourth of the population.

The county of CLARE occupies the peninsula between Galway Bay and the estuary of the Shannon. It is a region of barren hills, cut in two by the fertile valley of the Fergus, and abounding in *tulloghs*, or winter lakes, and underground water-courses. *Ennis*, the county town, stands at the head of the estuary of the Fergus, and is the ancient residence of the O'Brians. *Clare*, a village with a castle used as barracks, stands below. *Corofin* and *Kilfenora* are higher up on the Fergus. *Kilrush*, on the estuary of the Shannon, is a favourite watering-place, and has some trade in fish and peat. A railway connects it with *Kilkee*, on the

open Atlantic. *Killaloe*, at the point where the Shannon issues from Lough Derg, is a bustling place, with quays, docks, warehouses, slate quarries, and a remarkable cathedral, founded in the twelfth century. An old bridge joins it to Ballina, in Limerick.

The county of LIMERICK lies to the south of the Shannon, and consists for the most part of a plain of exceeding fertility, known on that account as the "Golden

Fig. 210.—SLIGO HARBOUR.

From an Admiralty Chart. Scale 1 : 148,000.



Vale." *Limerick*, the county town, is seated in the midst of this plain ; but although it is the natural maritime emporium of the whole of the Shannon valley, its commerce is trifling, and even modern houses in the centre of the town wear an air of dilapidation. Vessels of 600 tons can reach its docks, but owing to its remote position on the western coast, the town is not able to compete with

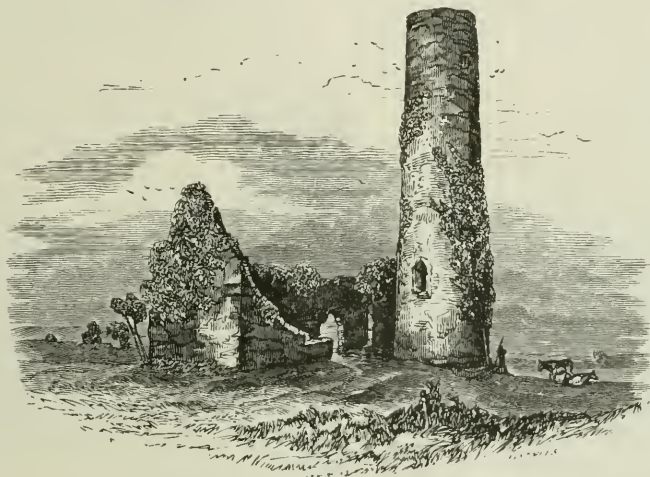


LIMERICK—THOMOND'S BRIDGE AND KING JOHN'S CASTLE

Cork and Dublin in the export of agricultural produce to England. The local industry supplies fish hoops, gloves, lace, snuff, and army cloth, and the trade in provisions is of some importance. There are several objects of antiquarian interest, most prominent amongst them being the walls and towers of the old castle, which rises on the left bank of the Shannon, and beneath which nestle the houses of "English Town," joined by seven bridges to "Newtown Pery" and "Irish Town." *Castleconnell*, above Limerick, by the side of the Falls of Doonas, has already been referred to.

In the fertile valley of the Maigue are *Adare*, *Croom*, *Kilmallock* (one of the oldest towns of Ireland, with ruins of walls and curious buildings), and *Kilfinane*, near which are the ruins of Ardpatrik Abbey. More considerable are the towns in the basin of the Deel, to the west of the Maigue. Here stand *Askeaton*, formerly strongly fortified; *Rathkeale*, an ancient place, near which settlements

Fig. 211.—ROUND TOWER OF CROOM.



of Palatines were formed in the seventeenth century; *Newcastle*, where coarse cloth is made; and *Ballingarry*, with extensive ruins of ecclesiastical buildings. On the Lower Shannon are *Foynes* and *Glin*, small villages engaged in the coasting trade. *Hospital*, a village on the eastern border of the county, is noted for its horse and cattle fairs.

The county of KERRY extends from the mouth of the Shannon to the Kenmare River, and is indented by deep bays, the peninsulas between which are filled with wild mountains. The peninsula of Corkaquiny, between Tralee Bay and Dingle Bay, rises to a height of 3,127 feet. At its western extremity lie the Blasket Islands. A second peninsula, filled with spurs thrown out from the Macgillicuddy Reeks (3,414 feet), beyond the Lakes of Killarney, stretches towards the Atlantic between Dingle Bay and the Kenmare River. The north-eastern portion of the county is hilly, and abounds in broad and fertile valleys.

Tarbert, on the Lower Shannon, is a fishing village. *Listowel*, in the fertile

valley of the Feale, is the county town. Near it is *Ardfert*, anciently the seat of a bishop. *Tralee*, the largest town of the county, is prettily situated on the river Lee, and connected by a ship canal with its port at *Blennerville*. *Dingle*, on the bay of the same name, formerly carried on an extensive traffic with Spain, but is now limited to an insignificant coasting trade. At the mouth of this bay lies Valentia Island, which shuts in an excellent harbour, on which is seated *Cahereiveen*, a fishing village. Valentia Island, the "capital" of which is Knightstown, the residence of the self-styled "Knight of Kerry," has slate quarries, but is principally known as the point of departure of the first Atlantic

Fig. 212.—LAKES OF KILLARNEY : ROSS CASTLE.



cable. It forms, too, the western extremity of the arc of a circle of latitude which has been measured across Europe. Its fame, however, is far inferior to that of *Killarney*, a mere tourists' village, seated near the bank of its beautiful lake. *Kenmare*, at the head of the bay called Kenmare River, has a copper mine in its vicinity.

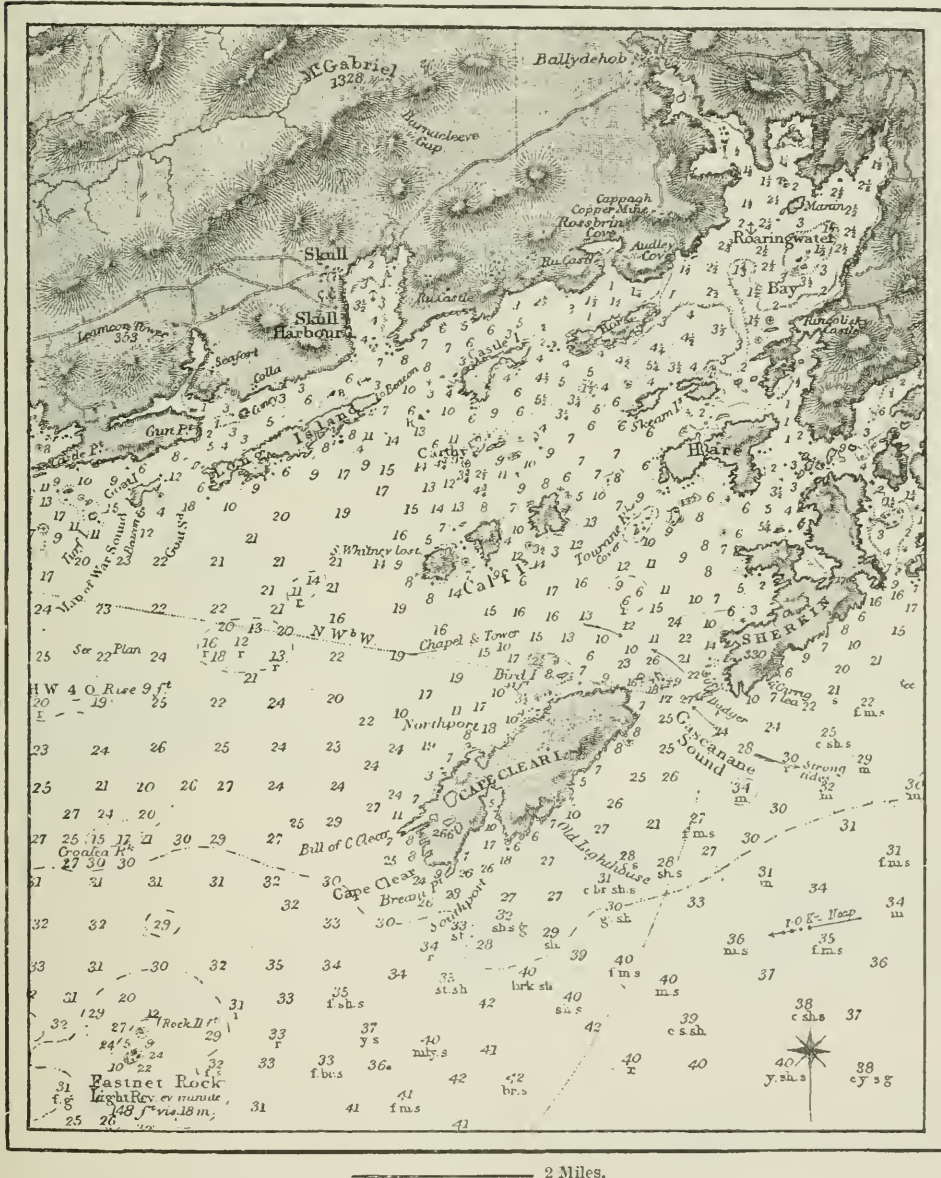
The county of Cork borders upon the Atlantic between Kenmare River and Youghal Bay, and is traversed lengthwise by a succession of parallel hill ranges, separated by the valleys of the Brandon, Lee, and Blackwater.

Allihies, on Kenmare River, is remarkable only on account of its copper mine.



Bantry, at the head of Bantry Bay, in which 14,000 Frenchmen were landed in 1796 for the liberation of Ireland, is known only to artists and fishermen. *Castletown Berhaven*, on the same bay, is a fishing village. Rounding Mizen

Fig. 213.—CAPE CLEAR ISLAND.
From an Admiralty Chart. Scale 1 : 145,000.



Head, we enter the bay which is bounded on the east by *Clear Island*, and whose entrance is proclaimed afar by a lighthouse on *Fastnet Rock*. *Skibbereen*, on an estuary of that bay, has some coasting trade; but *Baltimore*, nearer to the open sea, although it has given its name to a great American city,

is merely a fishing village, in former ages exposed to the ravages of Algerian man-stealers. Still proceeding eastward along the coast, we pass *Rosscarbery*, a small cathedral town, and *Clonakilty*, a small town with coasting trade and fisheries, and reach *Kinsale*, the port of the Bandon valley, which, like Galway, can still show a few Spanish mansions dating back to a time when Kinsale belonged to Spain. For more than two centuries, from 1381 to 1601, Galicians and Castilians kept up frequent intercourse between this Irish town and their own ports.

Fig. 214.—CORK HARBOUR.

From an Admiralty Chart. Scale 1 : 178,000.



Bandon, the principal town on the river of that name, has a little woollen trade. *Dunmanway*, is a village on the Upper Bandon.

Cork, the third city of Ireland in population and commerce, occupied until the early Middle Ages a small village, which the Irish called Corroch, or "Swamp," owing to the nature of the soil upon which it stood. Subsequently this village became the capital of Munster. The old city occupies an island of the river Lee, and several bridges place it in connection with the extensive suburbs on both banks. Other islands are covered with gardens and public promenades. Cork

is a place of some industry, and amongst other articles supplies "Limerick gloves." It has also some pretensions to be considered a seat of learning and art, for it possesses a Queen's College, a museum, a public library, and a number of learned societies. As the river Lee only admits vessels of 600 tons, the principal harbour of the town has been established lower down the estuary. Descending the river in one of the steamers which ply on it, we successively pass groups of houses, ship-yards, warehouses, and watering-places before we reach *Queenstown*, or the *Cove*. Nearly all the larger steamers and sailing vessels do not go beyond Queenstown, for Cork is a harbour of refuge and equipment rather than a trading port. More than half its foreign trade is carried on with America. Strong forts defend the entrance to the harbour. On Spike Island, in its centre, is a convict prison. *Passage West*, *Blackrock*, and *Monkstown*, on the western side of the harbour, are delightful watering-places. *Cloyne*, near its eastern shore, has the ruins of a cathedral and a round tower. *Middleton*, on the Owennacurra, which enters the north-eastern corner of the bay, is a small market town with a distillery.

Amongst the villages in the neighbourhood of Cork, *Blarney* is certainly most widely known, for in the grounds of its castle there lies a stone, kissing which the humble worshipper is at once endowed with the persuasive eloquence which forms so characteristic a feature of the people of Cork, but not with the gift of unblushingly deviating from the truth, of which the people of Moncrabeau make a boast. *Macroom* is the only noteworthy place in the valley of the Upper Lee.

Youghal, at the mouth of the Blackwater, here crossed by a wooden bridge 1,787 feet in length, is important for its fisheries. It was in its neighbourhood that Sir Walter Raleigh planted the first potato—in the opinion of many, the most fatal gift which the Old World ever received from the New. About 300,000 tons of seaweed are annually gathered on the beach of Youghal Harbour, to be used as manure. On the Upper Blackwater are the towns of *Fermoy* and *Mallow*, the former noted for its coach-building factory, the latter a cheerful market town: both are beautifully situated. *Buttevant*, a decayed town, with the ruins of an abbey, and *Doneraile*, with marble quarries near it, are seated on the small river Awbeg, which joins the Blackwater below Mallow. Kilcoleman Castle, where Spenser wrote his "Faëry Queen," stands near the latter. *Kanturk* and *Millstreet* (Drishane Castle is near it), in the Upper Blackwater valley, and *Mitchelstown* and *Charleville*, on the northern boundary of the county, are small market towns.

The county of WATERFORD extends along the sea from the Blackwater to Waterford Harbour, and is bounded inland by the Suir. Near its western boundary rise the Knockmealdown Mountains, which throw off spurs, filling nearly the whole of the county.

Waterford, the great port of Eastern Munster, stands on both banks of the Suir, spanned by a bridge of thirty-nine arches. According to Thackeray, many of the inhabitants still deserve what a poet, who accompanied Richard II. to Ireland said of them four centuries ago: "Watreforde, où moult vilaine et orde y sont la gente."

Henry II. landed at Waterford in order to take possession of Ireland, which had been given him by the Pope, and ever since that time frequent intercourse with England has been maintained. At the present day sixteen steamers depart every week for Milford Haven, Newport, Liverpool, Glasgow, Bristol, and London. *Portlaw*, above Waterford, on the Eladagh, has a cotton-mill. *Passage* and *Dunmore* are small villages below it, on the "Harbour." On the coast are *Tramore*, with a dangerous harbour; the twin villages of *Knockmahon* and *Bonmahon*, with lead mines; and *Dungarvan*, on a shallow bay, with a large distillery. The Lower Blackwater crosses the western extremity of the county. *Lismore*, an ancient university city, with the ruins of a cathedral and an old castle, is now merely a village, but its environs are as delightful as ever. A canal joins it to Youghal at the mouth of the river. *Cappoquin*, also on the Blackwater, has near it the Trappist monastery of Mount Mellery, whose inmates have abjured the use of flesh and stimulating drinks, but have reclaimed a large piece of once sterile mountain land which lies around their abode.

The county of TIPPERARY is almost wholly drained by the river Suir, but its north-western portion, beyond the Silvermine Mountains, slopes down to the Shannon and Lough Derg. It has its "Golden Vale" like Limerick, and is more carefully cultivated than most parts of Ireland.

With the exception of *Roscrea*, in a rich tract at the northern extremity of the county, and of *Nenagh*, on the Shannon slope, all the towns of Tipperary lie within the basin of the Suir. On descending that river we first pass *Templemore*; then *Thurles*, a prosperous market town, with a Catholic cathedral and St. Patrick's College; obtain a glimpse of the ruins of Holy Cross Abbey; and then reach *Cashel*, at the foot of its steep rock, crowned by the ruins of a tower, a cathedral, a chapel, and a palace of the Kings of Munster. *Tipperary* lies in its Golden Vale to the west of the Suir, and at the northern foot of the Galty Mountains. *Cahir*, on the Suir, is a Quaker town, a fact proclaimed by its appearance of comfort and cleanliness. *Clonmel*, the largest town of the county, carries on a brisk trade. It is the birthplace of Sterne, the humorist. Its castle and fortifications were destroyed by Cromwell in 1650 after a protracted siege. North of it lies the ancient town of *Fethard*, with remains of the walls which formerly protected it. *Carrick-on-Suir*, on the eastern boundary of the county, is a town of considerable trade, and manufactures coarse cloth.

Far out in the Atlantic, 250 miles west from the Hebrides, 300 miles from the nearest point of Ireland, and altogether outside the submarine plateau upon which rise the British Islands, the dumpy pillar of ROCKALL rears its head above the water. That rock, which from afar might be taken for a vessel under sail, owing to the sheet of guano which falls over its slope, is hardly a hundred yards in circumference; but it forms the summit of a huge range of submarine mountains, rising in the same direction as the Färöer. This range, separated from the

British Islands by an abyss 8,000 feet in depth, almost appears as if it were the remnant of a land which at one time rose above the sea. Heaps of shells have been discovered upon it, and even vast beds of fish bones, which can only have accumulated on a beach subsequently submerged by a subsidence of the land. Shoals of fishes sport around Rockall; but its distance from the land, and the rude tempests of the Northern Atlantic, have until recently prevented the visits of fishermen. Since 1860, however, Scotch fishermen have learned to appreciate the importance of this "California" lying close to their doors, and they now frequent this bank, supplying London and other British markets with live cod. From this period that rock and the banks around it have formed part of the British Islands, not perhaps politically, but as a foraging ground.





CHAPTER XVI.

STATISTICS OF THE UNITED KINGDOM.

POPULATION.

UP to the beginning of the present century the population of the British Islands was only known approximately, the estimates being based upon the number of hearths or the yield of certain taxes. Its increase during the whole of the Middle Ages can have been only slow, for its growth was impeded by a want of roads, the low state of agriculture, the rudimentary condition of industry, frequent wars, and a neglect of sanitary laws; and famines often carried off more men in a few months than had been added to the population in a generation. It is probable that at the commencement of the seventeenth century the number of inhabitants did not exceed 5,000,000. Since then the growth has been continuous, for the construction of roads has rendered it possible to supply corn to districts afflicted by bad harvests, whilst the increase of commerce and industry has opened up fresh resources to the inhabitants.

When the first census was taken in 1801, it was found that the British Islands were inhabited by 16,000,000 individuals, and their number has more than doubled during the eighty years which have since elapsed.* At the present time the population increases annually at the rate of more than 300,000 souls. Between 1861 and 1871 the daily increase amounted to 500 persons, and since then it has risen to a diurnal increment of 1,000 souls, without there being any sign of a reaction. The British Islands are amongst the most densely populated countries of the world. In England the number of inhabitants

* Population of the British Isles:—

	1801.	1871.	1880.
England and Wales	8,892,500	22,712,250	25,480,160
Scotland	1,608,400	3,360,000	3,661,290
Ireland	5,395,500	5,411,500	5,363,590
Isle of Man and Channel Islands	100,000	144,650	150,000
Total	<u>15,996,400</u>	<u>31,628,400</u>	<u>34,655,040</u>

to a square mile is greater than in any other European country of the same extent.*

The population of the towns increases at a much more rapid rate than that of the rural districts. This is the case in all commercial and manufacturing countries, but nowhere else in Europe is the discrepancy so great as in England and Scotland. The dwellers in towns have long outnumbered the rural population of Great Britain, for out of 9 inhabitants 5 live in towns, and the difference between the two is annually increasing. London alone includes the fifth part of the population of England, and Glasgow occupies a similar position with reference to Scotland. A time may come when the villages will be superseded by agricultural factories and clusters of huge dwelling-houses, as dependencies of the towns in their neighbourhood. The tiller of the soil is fast being turned into a factory labourer, who readily changes his abode according to the necessities of his work, and the number of citizens who annually spend a few weeks or months in the country, whilst still keeping their ordinary place of business in the towns, is annually increasing. Quite irrespective of the forcible ejection by greedy landlords of the inhabitants of entire hamlets, there are not wanting villages which have become depopulated in the course of the last generation. In the Scotch Highlands, in certain agricultural counties of England, and even in Ireland the migration of the agricultural population towards the great manufacturing towns has assumed such proportion as to lead to a decrease of the population far greater than could be made up by an excess of births over deaths. In reality the fecundity of marriages is pretty much the same throughout the country, yet in the south-west and in other agricultural counties of England the population increases but slowly, if it does not decrease, whilst in London and the great manufacturing districts in the north the increase is astounding.† The inquiries as to the birthplaces of the people which have been made show very conclusively that the great centres of commerce and industry do not so much draw towards them the inhabitants of smaller towns, but that they exercise a most potent power of attraction upon their immediate neighbourhood. The inhabitants of the country surrounding the town flock into it, the gaps they leave are filled up by immigrants from more retired country districts, and so on, until the attractive force of one of these rapidly increasing cities makes its influence felt to the most remote corner of the kingdom.‡ Several counties, in which the number of factories is small, are more

* Number of inhabitants to a square mile :—

England and Wales	392	France	180
Scotland	52	German Empire	201
Ireland	163	Russia in Europe	34
British Isles	244	Belgium	469

† Increase of the population of England, 1861—71 :—

Northern counties	23 per cent.	Midland counties	9 per cent.
Yorkshire	19 „	Eastern counties	7 „
North-western counties	15 „	South-western counties	2 „

‡ Ravenstein, "The Birthplaces of the People and the Laws of Migration." London, 1876.

strongly represented in London than in their own county town. Having no focus of attraction of its own, the rural population flocks to London, or to some other manufacturing or commercial city. Whilst in Kerry, Mayo, and Donegal, in Ireland, not 5 per cent. of the inhabitants are born beyond the limits of these counties, and the local element of the population in the remainder of Ireland as well as in many agricultural districts of England amounts to four-fifths of the total population, there are other counties—such as Middlesex, Surrey,

Fig. 215.—INCREASE OR DECREASE OF THE POPULATION, 1861—1871.

According to E. G. Ravenstein.



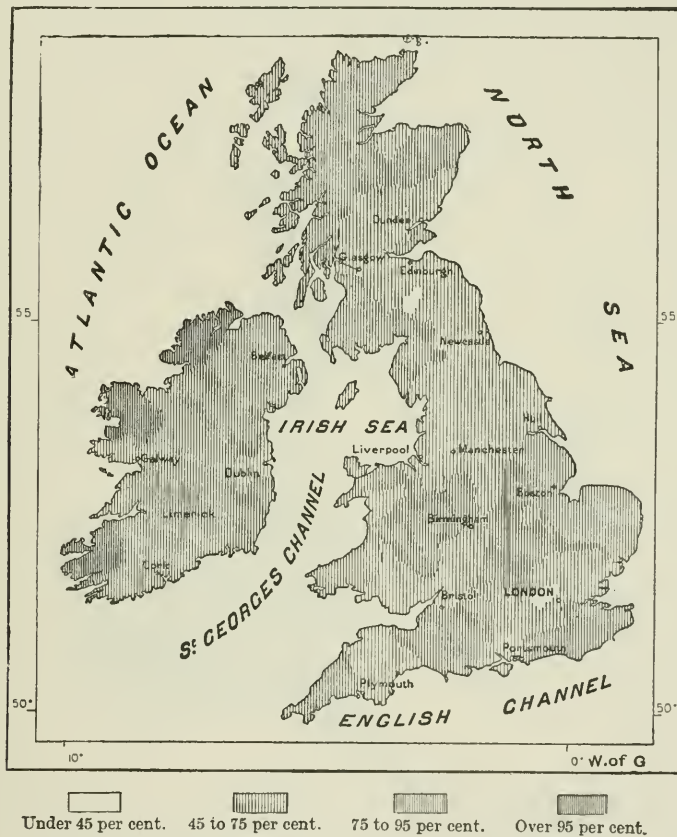
Yorkshire, Dumbartonshire, Renfrew, Lanarkshire, or Edinburghshire, all of them abounding in coal or in large towns—where less than three-fifths of the resident inhabitants are natives.*

It is only natural that the death rate in the towns should exceed that of most

* In 1871 24,152,852 persons resided within the counties in which they were born, being 76·36 per cent. of the total population of the British Isles. These constituted the "local element" of our map. According to birthplaces there were 21,849,518 natives of England and Wales, 3,296,387 of Scotland, 6,055,395 of Ireland, 139,322 of the Isle of Man and the Channel Islands, and 258,677 persons born abroad and at sea.

rural districts, for the impure air which the townsmen are compelled to breathe must necessarily shorten their lives. Yet there are many towns—and London is one of them—whose death rate is comparatively lighter than that of certain country districts, for it is in large towns that we meet with the public institutions whose attention to the laws of hygiene reduces the number of deaths. Perhaps there is not in the whole United Kingdom a more safe retreat from premature death than the gaol of Perth. All other things being equal, the death

Fig. 216.—THE LOCAL ELEMENT OF THE POPULATION
According to E. G. Ravenstein.



The map is shaded to exhibit the number of persons living in the counties in which they were born.

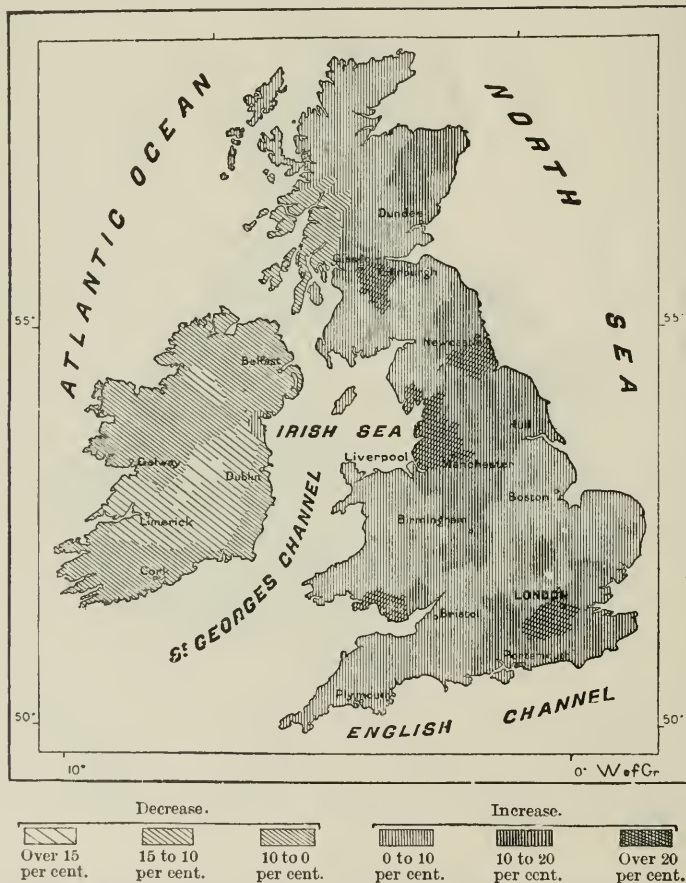
rate of each town depends upon the purity of the drinking water, and whilst wealthy towns have been able to provide themselves with excellent water by constructing reservoirs on the uplands or in the mountain valleys, the villages around have frequently nothing to look to but the rivulet soiled by the refuse of their huge neighbour. Many of the townsmen are able, moreover, to enjoy an annual holiday, and to recruit their strength by a lengthened residence in bracing mountain air or on the seaside. The towns and villages which border the lakes of Cumberland and the lochs Scotland—Lomond, Katrine, Awe, Rannoch, Errocht—

are, in truth, but "suburbs of London."* The same might be said of Brighton and of the many other watering-places which stud the coasts of the English and Irish Channels, and of the North Sea. Have not Bath, Malvern, Leamington, and Cheltenham been built expressly that Englishmen of wealth may enjoy themselves whilst benefiting their health? And some of these watering-places are truly sumptuous, abounding in almost palatial dwelling-houses replete with every luxury and convenience.

The annual increase of the population is almost wholly due to an excess of births over deaths, and would be still more considerable if the surplus were not reduced

Fig. 217.—INCREASE OR DECREASE OF THE NATIVES OF EACH COUNTY, 1861—1871.

According to E. G. Ravenstein.



The map is shaded to exhibit the increase or decrease of the natives of each county, irrespective of such natives residing in the county of their birth or elsewhere in the United Kingdom.

by emigration. Even in Ireland, the population of which has only very recently shown signs of a slight increase, the birth rate, ever since the great famine, has been higher than the death rate. Taking the average for the last ten years, the births exceeded the deaths annually to the extent of 430,000, and it is satisfactory to be able to assert that whilst the birth rate is rising, the death rate is steadily

* N. Hawthorne, "English Note-Books."

declining—a proof of the greater wealth of the people no less than of the beneficial influence of sanitary improvements.* The number of marriages and births fluctuates, as a matter of course, according to whether times are prosperous or the reverse; but upon the whole it is remarkably steady, far more so than on the continent. Still there are thousands of marriageable English men and women who are either too poor to marry or dread the responsibility of becoming the founders of a family. The number of females is larger than that of males, for although more boys are born than girls, the mortality amongst the former is greater, and in the end the female sex preponderates.† The normal increase of the population is considerably retarded by the large number of persons living in celibacy. If all Englishmen were to marry on attaining a marriageable age, the population would double itself every twenty years, for to every marriage there are four or five births. In England people marry younger and have more children than in most other countries of Europe, and especially France. These early marriages give birth to a feeling of responsibility, promote industry and enterprise, and are conducive to a regular mode of life.

The rate of mortality is about the same in England as in France. Ordinarily it is supposed to be somewhat less, but we must bear in mind that still-born children find no place in the tables published by the Registrar-General.‡ The British Islands may certainly be included amongst the most salubrious countries of the world. Medical men assert that Englishmen resist the ills that flesh is heir to with great success. The mortality resulting from the surgical practice carried on in English hospitals is less than half what it amounts to in French institutions of the same class. “English flesh differs from French flesh,” says M. Velpeau. The measles and scarlatina are attended with greater danger in England than on the continent, but consumption is the great slayer on both sides of the Channel. It carries off nearly one-half of the men and women who die between the ages of twenty and thirty, and altogether causes the deaths of one-tenth of the population. Next to it, bronchitis, pneumonia, convulsions, small-pox, diarrhœa, and heart disease prove most deadly. And whilst diseases of the chest fasten upon those of delicate constitution, gout attacks and kills men of sanguine temperament and full of animal spirits.

Emigration carries off annually a considerable proportion of the natural increase of the population resulting from an excess of births. A regular emigration movement first began after the great Napoleonic wars in 1815. It

* Rate of marriages, births, and deaths (*pro mille* of total population):—

	ENGLAND AND WALES.			SCOTLAND.		
	Marriages.	Births.	Deaths.	Marriages.	Births.	Deaths.
1856—60 . . .	8·3	34·4	21·8	6·9	34·4	20·7
1861—65 . . .	8·4	35·6	22·6	7·1	35·4	22·3
1866—70 . . .	8·2	35·3	21·4	7·0	35·1	22·0
1871—75 . . .	8·5	35·6	22·0	7·5	35·1	22·7
1876—79 . . .	7·8	35·9	21·0	7·0	34·5	20·9

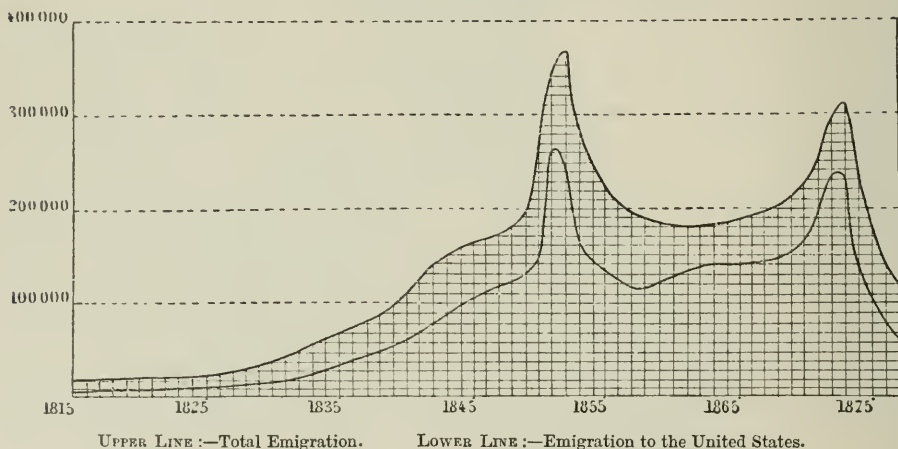
It would be perfectly useless to give similar statistics for Ireland, as the returns from that kingdom are imperfect and altogether misleading.

† Between the years 1841 and 1876 there were born 1,048 boys to every 1,000 girls, but in the total population there were 1,054 females to every 1,000 males.

‡ Bertillon, “Encyclopédie des Sciences Médicales.”

increased by degrees between 1841 and 1850, and culminated in a veritable exodus, which threatened with depopulation several parts of Great Britain, and more especially Ireland. In 1852 over 1,000 persons daily left the shores of the United Kingdom in search of a new home in America or in one of the English colonies. At no time, however, did the number of emigrants exceed the natural increase resulting from an excess of births over deaths. After 1852 this emigration movement gradually subsided. About 1870 it received a fresh impetus, but for the last few years the number of emigrants has been small compared with the total population; for we must bear in mind that many of them return after they have succeeded in amassing a competency abroad, and that, in addition to this, considerable immigration of foreigners takes place. An influx of immigrants thus counterbalances, in a large measure, the losses sustained by emigration. Altogether about 8,000,000 natives of the British Islands have emigrated since 1815. These millions of voluntary exiles, though sometimes

Fig. 218.—TOTAL EMIGRATION FROM THE BRITISH ISLANDS.



decimated by disease on reaching the country of their destination, have given birth to other millions, and they and their descendants are now equal in numbers to at least half the population of the British Isles.*

* Statistics of emigration :—

Years.	Average Number of Emigrants in each Year.	Destination of Emigrants per cent.		
		United States.	British North America.	Australia.
1840—1849	149,478	57·3	30·8	9·8
1850—1859	243,958	64·8	10·1	22·6
1860—1869	154,781	69·9	8·3	18·6
1870—1874	206,275	72·4	12·2	11·7
1875—1878	114,560	50·9	6·2	29·5

The above table includes only emigrants of British birth, and not foreigners who embarked at British ports.

The official returns of immigrants should be accepted with some hesitation. Compared with the number of emigrants they are as follows :—

	British-born Emigrants.	Immigrants.	Excess of Emigrants.
1863—1870	1,398,869	255,912	1,142,957
1871—1878	1,247,103	676,143	670,960

AGRICULTURE.

THE agricultural produce of the British Isles far from suffices for the wants of the inhabitants. Since 1795 England has been compelled to import ever-increasing quantities of cereals in order to feed its population. From year to year more foreign wheat and wheaten flour enter into home consumption. Reduced to its own agricultural resources, there would be food only for four months in bad years, and for six with an abundant harvest.* Although cereals yield more prolific harvests in England than in any other country of the world,† the cultivation of wheat is nevertheless declining, for the immense supplies forwarded from America and other countries keep down prices, and render wheat-growing less profitable than it used to be. Farmers in recent years have paid more attention to cattle and green crops than to cereals. The moist climate facilitates the conversion of the arable land into vast meadows. The western counties, with their abundant rainfall, have ever been famous for their grazing husbandry and dairy-farming, whilst the eastern counties continue to supply most of the corn, besides peas and beans. It is now nearly a century since England, from having been an agricultural country, became a manufacturing one. Up to about 1770 the export of cereals exceeded the imports, but after this time the latter far exceeded the former, and with every year the dependence of England upon foreign countries for her supplies of wheat has become greater. Not a grain of corn is now grown in the country but what is wanted for the support of the inhabitants.‡

Only a comparatively small portion of the cultivated surface of the British Isles is devoted to the production of so-called industrial plants, foremost amongst which, in Kent, Sussex, Hereford, &c., are hops, and in Ireland flax. The sugar-yielding beet-root is hardly cultivated at all, although the climate of England is as well adapted to its growth as that of Belgium or Northern Germany. In very many respects the rural economy of England differs from that of France and other countries, in which the soil is divided amongst a multitude of small proprietors. Extensive areas are devoted to the same crop, and the many-coloured rectangular

* Average annual consumption of wheat and wheaten flour in the United Kingdom from 1866 to 1875, 171,200,000 bushels, or $5\frac{1}{2}$ bushels to each inhabitant.

† Average yield per acre in bushels:—

	Wheat.	Rye.	Barley.	Oats.	Average of Cereals.
Great Britain	28	34	37	44	36
Ireland	22	20	35	36	28
France	17	15	19	24	19
Portugal	12	8	16	18	13

“Statistique internationale de l'Agriculture,” 1876.

‡ Imports and exports of wheat (annual averages):—

1760—1770: excess of exports over imports	. . . . .	41,900 tons.
1770—1780: „ imports	. . . . .	5,900 „
1780—1800: „ „	. . . . .	100,000 „
1840—1850: „ „	. . . . .	600,000 „
1850—1870: „ „	. . . . .	2,000,000 „

Laspeyres, *Deutsche Revue*, i. No. 1, 1877.

patches, which form so striking a feature in France, are hardly ever met with. Nature, indeed, has been permitted to retain her pristine beauty, despite the interference of man; at all events, the undulations and contours of the ground have not been obliterated by a too minute and artificial subdivision of the soil. Most of the ancient forests have ceased to exist, but hundreds of country residences stand in the midst of parks, clumps of fine trees stud the meadows and hedges, and many a village lies embosomed in orchards, whose verdure cleanses the atmosphere,

Fig. 219.—LAND UNDER CULTIVATION.



and which regulates the rainfall just as the forests did in days of yore. Extensive stretches of heath have been planted with pines and other conifers since the middle of last century, more especially in the hills of Scotland and Ireland: some of these modern plantations number as many as 50,000,000 trees. Although British farmers are noted for the care with which they till their fields, there yet remain extensive tracts of heath, moorland, and bogs, particularly in Scotland and Ireland. These barren tracts not only stretch across cold mountain-tops, where the temperature is not high enough to ripen crops, but they also invade the hilly

ground, and even the lowlands.* More than a third of the area of the British Islands remains uncultivated, and this is greater in proportion than in any other country of Western Europe. But if the agricultural returns published by the Board of Trade can be trusted, the cultivated area is increasing with every year. No less than 2,000,000 acres of heath and mountain land are stated to have been brought under

Fig. 220.—LAND UNDER CORN CROPS.



cultivation since 1867. All this increase, however, is confined to grass land and meadows, for the breadth sown with cereals has been declining for several years past.

* Agricultural statistics of the British Isles (including the Isle of Man and the Channel Islands):—

	1871.		1878.		1880.	
	Acres.	Per cent.	Acres.	Per cent.	Acres.	Per cent.
Corn crops (including wheat)	11,833,243	15·2	11,030,280	14·2	10,672,086	13·7
Wheat	3,831,054	4·9	3,381,731	4·3	3,065,895	4·0
Green crops	5,271,398	6·7	4,832,293	6·2	4,746,293	6·1
Clover, sainfoin, and grasses	6,236,588	8·0	6,557,748	8·4	6,389,225	8·2
Permanent pasture and meadows	22,525,761	29·9	24,056,840	30·9	24,717,092	31·7
Flax	174,269	0·2	119,085	0·2	166,521	0·2
Hops	60,033	0·1	71,789	0·1	66,705	0·1
Bare fallow	565,886	0·7	650,210	0·8	828,779	1·1
Cultivated area	46,667,178	59·8	47,318,240	60·7	47,586,700	61·2
Woods	2,500,461	3·2	2,516,000	3·6	2,740,000	3·6

For a more detailed statement see Appendix, pp. 494, 495.

There still remain in England and Wales about 2,600,772 acres of common lands, of which 1,150,000 acres are supposed to be capable of cultivation, whilst a great portion of the remainder might be rendered productive by planting it with trees, or as pasturage. The encroachment upon these common lands by the lords of the manors and others forms a dark chapter in the history of the country. Between 1760 and 1845 no less than 5,000,000 acres were enclosed by virtue of private Acts of Parliament, which altogether set aside the interests of the public. In the year 1845 the first Act was passed which recognised the rights of the public, and no enclosures are now permitted without a portion of the common dealt with being reserved as a recreation ground. About 620,000 acres have been enclosed since 1845. But though many of the commons have been enclosed, the old rights of way have been fought for, in most instances with success, and the villages in the agricultural counties have preserved their delightful footpaths, which wind in the meadows or along the banks of rivulets fringed with shade-throwing trees.*

The British Islands form a land of large estates. The landowners who have found a place in the new Domesday Book published in 1876 are more numerous than had been supposed; for their number throughout the United Kingdom, but exclusive of the metropolis, is no less than 1,173,683. We must bear in mind, however, that this number includes no less than 852,438 owners of houses or small gardens, whose aggregate estates do not amount to more than 852,438 acres, which is far less than the Duke of Sutherland can call his own (1,358,548 acres). Nor must we lose sight of the fact that many owners hold property in more than one county, and are counted twice or more, as the case may be. Deducting these, as well as owners who hold public property in trust, as it were, we find that the probable number of private owners holding one acre and upwards is 229,630 in England, 15,865 in Scotland, and 28,715 in Ireland, making altogether 274,210 for the United Kingdom.† Twelve persons hold between them no less than 4,440,500 acres, and over two-thirds of the soil of the British Isles are the property of about 10,000 individuals. Vast estates, whose value is continually increasing, are in the hands of members of the royal family, of the Church, the municipalities, and the two Universities of Oxford and Cambridge.‡ The members of the English aristocracy, taken as a body, are the most powerful landowners in Europe, and their hold upon the land keeps up and consolidates their power in the state. Peers and peeresses hold no less than 15,500,000 acres throughout the United Kingdom—that is, each about 29,600 acres—yielding an income of £25,000.

* Hugh Miller, "First Impressions of England and the English."

† Abstract of the Domesday Book:—

	Landowners holding under an Acre.	Landowners holding 1 to 500 Acres.	Landowners holding over 1,000 Acres.	Total Landowners.
England and Wales	703,289	259,340	10,207	972,836
Scotland	113,005	16,542	2,584	132,131
Ireland	36,144	26,111	6,461	68,716
United Kingdom	<u>852,438</u>	<u>301,993</u>	<u>19,252</u>	<u>1,173,683</u>

‡ Increase in the value of landed property between 1857 and 1877:—In England, 21 per cent.; in Scotland, 26 per cent.; in Ireland, 6 per cent. (James Caird, "The Landed Interest.")

In Ireland and Scotland the estates are even larger than in England.* In Ireland, owing to the financial embarrassments of many of the landowners, about one-sixth of the land has lately changed hands, in addition to which about 6,000 peasant proprietors have been created in consequence of the sale of a portion of the estate of the disestablished Irish Church. In Scotland, however, no changes of this kind have taken place through the intervention of Parliament, and 93 per cent. of the total area is held by 3,745 proprietors. There are landowners in that kingdom who from the highest of the mountains within their demesnes cannot survey all they are lords of, and several of the finest lakes of Scotland lie wholly within the bounds of a single park.

The population of the British Islands has considerably increased since the Norman invasion, but there is no reason to believe that the number of landowners has grown less since William the Conqueror divided all England amongst his followers. The old Domesday Book, or register of lands, framed by order of that king, and carefully preserved in the Record Office, enumerates in England 9,271 tenants *in capite* and under tenants, and 44,531 tenants in socage, *i.e.* tenants by hereditary right, who rendered knightly service, or paid a fixed rent in exchange for the land they held. The 108,407 *villains*, who held an intermediate position between burgesses and serfs, were originally only tenants at will, and at the mercy of their lords, but in course of time they developed into copyholders, and their estates passed from father to son. It was these villains who formed the bulk of that stout *yeomanry* which conferred such conscious strength upon the people of mediæval England. The old Saxon custom of dividing the land in equal portions amongst all the children still survives in a few parts of the country, and more especially in the county of Kent, where it is known as gavelkind,† and during the centuries which immediately succeeded the Norman conquest must have largely increased the number of landowners. The *yeomen*, according to Macaulay, about the middle of the seventeenth century still constituted one-seventh of the total population.

But what has become of Old England, with its peasant proprietors and country gentlemen? No doubt small capitalists and even working men are intent upon carving out of the land a small plot which they may call their own, and which is just large enough for a house and a small garden. In these laudable efforts they are assisted by numerous Building Societies, and around Birmingham the number of these small freeholders already exceeds 13,000. But the peasant

* Proportionate size and annual value of landed properties:—

Size of Estates.	Proportion of total Area returned per cent.				Proportion of total Annual Value returned per cent.			
	England and Wales.	Scotland.	Ireland.	United Kingdom.	England and Wales.	Scotland.	Ireland.	United Kingdom.
Under 50 acres . . .	7.3	0.7	1.1	3.8	44.4	43.3	17.5	42.1
50 to 100 acres . . .	26.1	3.4	10.9	15.9	18.1	11.0	15.5	16.8
500 to 1,000 acres . . .	10.0	3.1	9.5	8.0	6.5	6.7	10.0	6.9
1,000 to 20,000 acres . . .	49.7	34.6	58.7	48.3	27.5	27.5	45.7	29.4
Over 20,000 acres . . .	6.9	58.2	19.8	24.0	2.7	12.5	11.2	4.8
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

† Shaw-Lefevre, *Fortnightly Review*, vol. xxi. New Series.

has gone, and his place is filled by the agricultural labourer. Small estates are being swallowed up by large. The law of entail, which prevents numerous land-owners from selling or dividing their estates, no less than the universal tendency of landed proprietors to enlarge the boundaries of their domains, more than balances the small changes effected by these purchasers of small freehold plots. There are counties in which estates of middling extent have ceased to exist. The ancient manor-houses stand empty, or have been converted into farmsteads. In Dorsetshire, for instance, there are 129 rural parishes, out of a total of 252, without a single resident landowner. The only portion of the British Islands in which the subdivision of the soil is carried to the same extent as in France is the Channel Islands, and there prosperity is universal.

The vast estates carved out of the British Islands are naturally divided into farms, and most of these are far larger in extent than are the plots owned by the vast majority of continental peasant proprietors. The size of farms averages 56 acres in England, 57 in Scotland, and 26 in Ireland.* The tenure under which farmers hold their land varies considerably, and although leases are granted in numerous instances, and as a rule throughout Scotland, the bulk of the English farmers are tenants at will. Oftentimes, however, farmers remain on the same estate for generations, and in these cases the relations between landlord and tenant are not unlike those which existed between the Roman patrons and their clients. Not only does the landlord rest content with a small rent, but he expends a considerable portion of his income upon improvements, such as drainage works, labourers' cottages, and homesteads.† Within the last few years landlords of this class, in consideration of a succession of bad harvests, have voluntarily granted a reduction of rent. Nevertheless many farmers have given up their holdings in despair. In Ireland tenants virtually enjoy a fixity of tenure—subject, of course, to the payment of rent; and outgoing tenants are entitled to compensation for any unexhausted improvements which they may have made.

In proportion as estates grew large, so did the agricultural population decrease in numbers. If the census returns can be trusted in this respect, it fell from 2,084,150 in 1851 to 1,833,650 in 1861, and to 1,447,500 in 1871. Farming has almost become a manufacturing industry, and the steam applied to agricultural machinery of every description does more work than is performed by human hands. The labourers whose services have been superseded by this powerful agent join their brethren in the manufacturing and mining towns, or seek new homes across the ocean. No other country in Europe enjoys such advantages for the development of steam culture as the British Islands. Coal and iron are cheap and

* Number and average size of farms :—

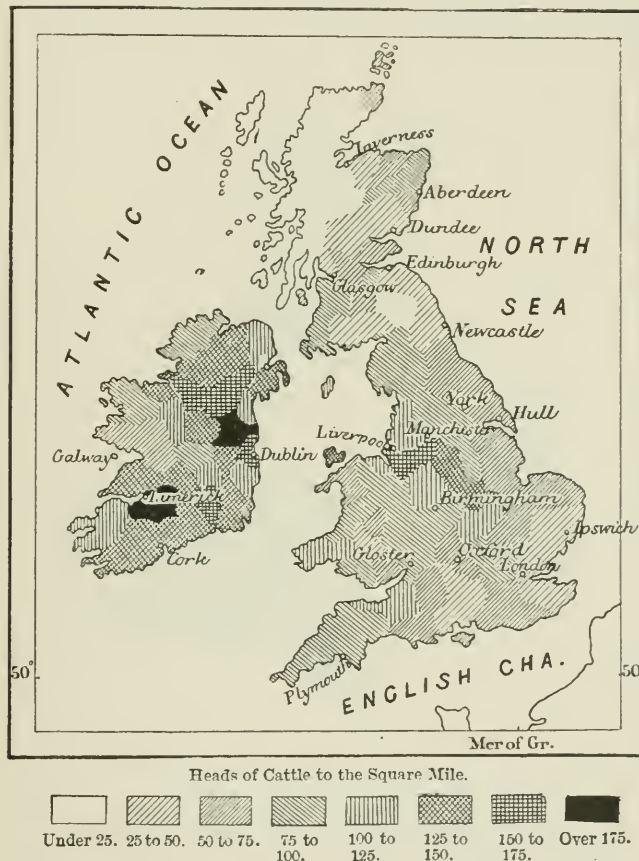
	Number of Occupiers. 1874.	Average Area. Acres. 1874.	Number of Occupiers. 1879.	Average Area. 1879.
England and Wales	480,178	56 }	554,823	58
Scotland	81,007	57 }		
Ireland	590,000	26	528,275	29

† De Laveleye, "*Patria Belgica*," tome 1er.

abundant, skilled artificers are numerous, and the nature of the soil and its distribution are favourable. Hence steam-ploughs are more numerous than in all the other countries of Europe together.*

It is somewhat curious that notwithstanding the increase in grass land, the live stock of the United Kingdom should have decreased to a considerable extent within the last few years.† This decrease is solely due to the prevalence of cattle plague and other diseases. Ireland is far richer in cattle than the eastern island; but although Great Britain has, proportionately to its population, fewer

Fig. 221.—DISTRIBUTION OF CATTLE.



cows and oxen than many other countries of Europe, this deficiency is in a large measure compensated by superior weight and quality.‡ No other country in

* Steam-ploughs about 1876 :—British Isles, 2,000 ; Germany, 104 ; Austria-Hungary, 25 ; France, 14 ; Russia, 9 ; Rumania, 7 ; Italy, 3 ; total, 2,062.

† Live stock of the British Islands (for further particulars see Appendix, p. 495) :—

	1868.	1872.	1875.	1878.	1880.
Horses	—	2,715,307	2,790,887	2,899,066	2,900,464
Cattle	9,083,416	9,718,505	10,162,787	9,761,657	9,833,072
Sheep	35,607,812	32,246,642	33,491,948	32,571,922	30,180,411
Pigs	3,189,167	4,178,000	3,495,167	3,768,019	2,849,888

‡ Heads of horned cattle to 100 inhabitants :—In Great Britain, 20·3 ; Ireland, 74·3 ; France, 30·8 ; Holland, 39·5 ; Belgium, 23·6 ; Sweden, 47·1 ; Switzerland, 37·2 ; Denmark, 69·4, &c.

the world has succeeded to the same extent in breeding domestic animals which excel in strength and size, supply better meat, or yield superior wool. The aboriginal breed of cattle, which was distinguished for long horns and an ungainly body, has been almost totally superseded by improved varieties,* in many instances the result of intentional intermixtures. The North Devonshire cattle are of a high red colour, with horns of middling size, short and curly hair, and thin flexible hides. They are active, admirably calculated for draught, fatten easily, and afford excellent beef. The Hereford cattle are obviously descended from the same stock, but they are of larger size and of a darker red colour. Their

Fig. 222.—DISTRIBUTION OF SHEEP.



faces and bellies are white. They fatten readily on coarse pastures, but are inferior as milkers. Amongst the short-horned breeds of Holderness and Teeswater (or Durham) the latter is held in the highest estimation, for they are superior milkers and fatten rapidly. The Highland cattle of Scotland are classed among the middle horns. They are small, active, and hardy, but their beef, when fattened on the rich pastures of the lowlands, is beautifully grained, and not surpassed by any other. The black or brindled cattle of Galloway are the most celebrated amongst the polled breeds, and their beef is second only to that of the

* Wilson, "British Farming."

Highlanders. The Ayrshire cows enjoy the highest reputation as milkers, and perhaps next to them rank the cows of Suffolk.

Sheep are even more important than cattle, for they can be bred and fed upon those extensive tracts of downs which could not support other animals. The breeds of Great Britain are usually divided into two classes, one of which produces long or combing wool, and the other short wool. The former includes the Dishley, or New Leicester breed, which owes its celebrity and its name to Robert Bakewell, the famous breeder. It has no horns, and its mutton is of fine grain and superior flavour. The short-woolled breeds include the Southdowns of England, the Cheviots, the black-faced or heath breed, and the dun-faced or mountain breed—the two latter almost exclusively in the Scotch Highlands. The Southdowns are equally valued for their fine wool as for their mutton. Merino sheep have been judiciously crossed with Southdowns and other breeds, but as English farmers are obliged to look to the meat market as well as to that for wool, they find it more profitable to keep to the native breeds.

Pigs in great variety abound in every part of the British Islands. Yorkshire is more especially noted for the quantity and quality of its hams, whilst Wilts, Hampshire, and Berkshire are credited with producing the best bacon. Goats are reared in the hilly districts, but they play a very subordinate part in the rural economy of the country.

Amongst the poultry there are several varieties which are appreciated by continental breeders. Dorking fowls are noted for their size, and readily distinguished by having five toes to each foot. Buckinghamshire is famous for its ducks, the Lincolnshire fens for their geese, and Norfolk and Suffolk for turkeys.

Englishmen have every reason to be proud of the noble breeds of horses which they can call their own, and which, varying in size and other qualities, are admirably adapted for the purposes for which they are intended. The large black horses bred in the midland counties excel in strength and weight, and are peculiarly well fitted for draught. Yorkshire produces excellent saddle horses, Cleveland bays are much sought after as coach horses, whilst Suffolk has a peculiar breed of farm horses. The Clydesdale horse is held in the highest esteem in Scotland. The ponies and shelties of the Highlands and islands of Scotland are the smallest animals of the kind in the kingdom, but they are generally handsome, active, sure-footed, and capable of enduring much fatigue. As to the English racehorse, it is descended in a nearly direct line from Arabs, Persians, and Barbs, and perhaps unsurpassed for symmetry and swiftness. Some of the other breeds have derived considerable advantages from having been judiciously crossed with it.

MINING.

ENGLAND occupies a foremost place in the world for its agriculture, but incontestably marches at the head of all as a mining country. Its "Black Indies" have been a greater source of wealth to it than would have been either Mexico or California. It is to coal England is indebted for its superiority as a manufacturing

state and its widespread commerce, which have in turn proved powerful agents in securing her political ascendancy. How many centuries, nay, how many decades longer will this coal hold out? This is a pregnant question, the solution of which

Fig. 223.—DISTRIBUTION OF COAL IN GREAT BRITAIN.
According to Hull.

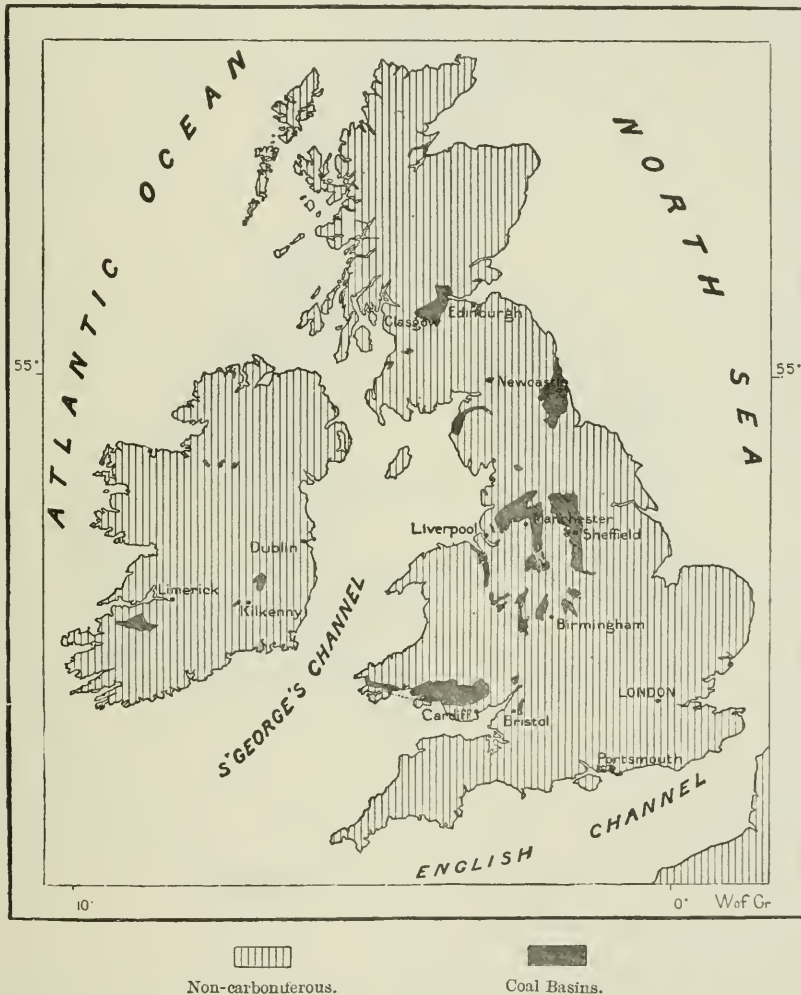


will affect, in a large measure, the destinies not only of the British nation, but of the whole world.

Geologists have ascertained that the carboniferous strata originally covered a vast portion of the British Islands as with a sheet, but that the destructive and

levelling agency of denudation has planed off all the inequalities of the surface, until there remained only the coal basins, such as we see them at the present day. Still these coal basins have an area of 12,000 square miles, and they are the most important in Europe, and those which are utilised to the greatest advantage. They have been worked at least since the age of the Romans, for cinders of coal have been found on the hearthstones of Uriconium, and galleries of an anterior

Fig. 224.—COAL BASINS.



date to the Saxon invasion have been discovered in the mines of Wigan. In 1670 the English coal mines already supplied more than 2,000,000 tons of fuel a year;* a century later triple that amount was extracted from them; and still another century nearer our own days, in 1870, they yielded 110,000,000 tons. The quantity of coal annually raised since then has averaged 125,000,000 tons, worth

* Thomas Wright; Edward Hull, "The Coalfields of Great Britain."

over £43,000,000.* At present this quantity is very nearly equal to what is raised in all the rest of the world, but the time has not long passed since the preponderance of England as a coal-producing country was still more marked, for in 1860 the British Islands yielded fully two-thirds of all the coal raised throughout

Fig. 225.—THE CARBONIFEROUS FORMATION BEFORE DENUDATION.

According to Hull.



the world. Hence, though the production has kept increasing, with slight fluctua-

* Coal production of the United Kingdom :—

	Coal raised. Tons.	£	Coal exported. Tons.
1851	—	—	3,463,545
1856	66,645,450	16,663,860	5,879,800
1861	83,635,200	20,908,800	7,855,100
1865	101,630,500	25,407,600	10,142,260
1871	117,352,000	35,205,600	12,748,000
1876	133,344,800	46,670,700	16,299,100
1877	134,610,760	47,113,770	15,420,000
1879	133,808,000	46,832,000	16,442,300

tions, the relative importance of the English coal mines has become less, and the political economists of England were justified in busying themselves with this coal question after Professor Jevons had raised his cry of alarm.* There is no fear, of course, of the stores of coal becoming altogether exhausted, for down to a depth of 4,000 feet they are estimated to amount to no less than 146 milliards of tons. That which causes apprehension is the proximate exhaustion of those coal seams which lie nearest to the surface, for the cost of raising the coal increases with the depth to which the miner has to descend in search of it, and the working of the mines may in the end prove unremunerative. Several of the coal basins—as, for instance, that of Coalbrookdale—have already been partially abandoned; others, including that of South Staffordshire, will probably be worked out by the end of the nineteenth century. In the meantime other countries whose coal basins are superior in extent to those of the British Islands might come to the front, and deprive England of her pre-eminence as a coal-producing country.† The coal-mine owners are very largely dependent upon manufacturers for their prosperity, for the crises which disturb the industrial world always exercise an influence upon the cost of the fuel consumed in the factories. Hence, notwithstanding the quantity of coal raised or exported exhibits an increase, the money paid for it may have been less, and such has virtually been the case of late. France for many years to come will no doubt remain England's best customer for coal, owing to the irregular distribution of her stores of fuel; but other markets may be shut through a slight displacement of the balance of trade. The coal trade is, moreover, one of those which suffers most from strikes, and is attended with the greatest risk to human life. The precautions now taken to prevent accidents are no doubt greater than formerly, but nevertheless of the thousand miners who are annually killed in the underground galleries of England and Scotland, the vast majority perish in coal mines.

Of the coal raised about one-sixth is used for domestic purposes; a third is employed to feed the engines of factories, steamboats, and railways; and over one-fourth is consumed in the manufacture of iron. Most of the iron ore occurs in the neighbourhood of the coal beds, and this is a capital advantage. The iron industry of England is of paramount importance, for it supplies about one-half of the cast iron employed throughout the civilised world.‡ It has often been said that the consumption of iron affords a true gauge by which to measure the prosperity of a country, and there is a great deal of truth in this. Up to 1740 the iron manufacturers of England only made use of charcoal in their smelting works; but after the first successful experiments had been made with mineral coal, charcoal gradually became disused, and by 1796 had been almost completely abandoned. Since then

* Jevons, "The Coal Question," 1866.

† Principal coal basins of the world, according to Neumann-Spallart:—

China . . .	193,460 square miles.	Germany . . .	3,570 square miles.
United States . . .	192,380 „	France . . .	1,890 „
Hindustan . . .	34,730 „	Belgium . . .	890 „
British Isles . . .	8,930 „		

‡ Say 7,000,000 tons out of a total production of 14,000,000 tons.

the manufacture of iron has attained a wonderful development in England, and still more so in Scotland, and until recent years the production increased every decade by hundreds of thousands of tons. The blast furnaces of Great Britain are equal to an annual production of 10,000,000 tons of iron and steel; but in no single year have more than 7,000,000 tons been actually produced, and of late more than half the available furnaces have occasionally had their fires extinguished. No other branch of industry has suffered more from the depression of the years 1872—79 than that of iron, but happier conditions of international trade have led to a wonderful revival. English iron-masters have more especially been intent upon reducing the cost of producing iron, and in this respect they have been eminently successful. In 1787 the Muirkirk Iron Company in Ayrshire expended 9 tons of coal in the production of a ton of pig-iron; in 1840 the average consumption of coal to effect the same result was $3\frac{1}{2}$ tons; in 1872, $2\frac{1}{2}$ tons; and at present it does not probably exceed 2 tons. Equally important are the new processes introduced into the manufacture of steel, and the “age of iron” is likely soon to be succeeded by an “age of steel.”

In comparison with iron the other metals won in the British Islands are of small importance. Cornwall and Devonshire yield copper and tin; Northumberland, Yorkshire, Derbyshire, Shropshire, Wales, Lanarkshire, and the Isle of Man yield most of the lead. Zinc is principally found in the Isle of Man and in Wales.*

MANUFACTURES.

NEXT to coal mining and iron-making there is no branch of manufacture in which the British Isles are so deeply interested as in that of textiles; or, in other words, the spinning of yarn from the raw material, and afterwards converting it into manufactured goods.† Of the various groups of this trade, that in cotton is by far the most important, and the one in which the prosperity of Great Britain is most bound up. In 1861 England supplied half the cotton goods consumed throughout the world. The quantity of English produce has increased since then, notwithstanding frequent oscillations; but continental Europe and the United

* Minerals raised and metals produced from British ores:—

	Quantities.		Estimated Value at the Place of Production.	
	1872. Tons.	1879. Tons.	1872.	1879.
Coal	123,497,316	133,808,000	£46,311,143	£46,832,000
Pig-iron	6,741,929	5,995,337	18,540,304	14,988,342
Fine copper	5,703	3,462	583,232	222,507
Metallic lead	60,420	51,635	1,208,411	755,489
White tin	9,560	9,532	1,459,990	689,163
Zinc	5,191	5,554	118,076	95,809
Silver from lead	62,892,002	33,346,202	157,320	70,905
Gold	—	44,702	—	1,790
Other metals	—	—	2,500	1,210
Salt	1,785,000	2,558,368	892,500	1,279,184
Clays	2,430,538	2,878,489	656,300	717,143
Other minerals (excluding build- ing stones, slates, &c.) . . . }	—	546,131	—	343,031

† Bevan, “Industrial Geography of Great Britain,” 1880.

States have made even greater progress, and Great Britain has thus relatively lost ground. The English cotton-mills contain as many spindles and power-looms as those of all the rest of the world combined; but owing to the powerful competition which English manufactures have been compelled to meet, it has repeatedly become necessary to work short time, or to stop work altogether. Continental manufacturers produce certain kinds of goods of a superior quality, and they have succeeded in depriving England of some of her most profitable markets, whilst the cotton industry of the United States, fostered by high protective duties, has taken a considerable development. Americans are not only no longer compelled to go to England for their cotton stuffs, but they have the audacity to send manufactures of their own into Lancashire. Even India has begun to compete with England in supplying her native population with cotton clothing.*

Whilst the cotton industry has its principal centres in Lancashire and the adjoining parts of Yorkshire and Cheshire, and in Lanarkshire, the manufacture of woollens is far more scattered. The West Riding of Yorkshire enjoys, however, a pre-eminence in the production of woollen cloth, worsted, and shoddy. The famous West-of-England cloths are manufactured in Wiltshire, whilst Newtown, in Montgomeryshire, is the head-quarter of the Welsh flannel trade. Hawick and Galashiels, on the Tweed, produce principally woollen hosiery. In many parts of the country, and especially in Scotland, wool spinning and knitting are largely carried on as a domestic industry. The carpet manufacture forms an important branch of the woollen trade. It is principally carried on at Wilton, near Salisbury; Kidderminster; Glasgow and Kilmarnock, in Scotland; and to some extent at Dewsbury and Leeds, in Yorkshire. In quantity the production of the English woollen-mills far surpasses that of those of France, but not always in quality.

The flax and linen trade, though carried on to some extent in Scotland and Yorkshire, is essentially one belonging to the north of Ireland, and Belfast surpasses all other towns of the world in the quantity and quality of its linen. Much of the flax consumed in the Irish linen-mills is produced in the country, and the farmers of Ulster would come off badly if they had not their flax crop to fall back upon. Dundee and Arbroath are the principal seats of the hemp and jute manufacture, but nearly all the raw material required has to be imported from Russia, India, New Zealand, and other countries.

The silk trade depends for all its raw material upon foreign countries, and for a considerable time past it has been in a depressed condition. It is principally carried on at Macclesfield and Congleton, in Cheshire, Derby, Nottingham, Manchester, London, and a few other places. Silk-weaving is an old industry in the districts of Spitalfields and Bethnal Green, in London, where it was first introduced by French Huguenots.

* Raw cotton imported, exported, and retained for home consumption:—

	Imported (lbs.).	Exported (lbs.).	Retained (lbs.).
1868 . . .	1,328,761,616	322,713,328	1,006,048,288
1871 . . .	1,778,139,716	362,075,616	1,416,064,100
1875 . . .	1,492,351,168	262,853,808	1,229,497,360
1879 . . .	1,469,358,464	188,201,888	1,281,156,576

Nottingham, Derby, and Tiverton are the principal centres for the production of machine-made lace, whilst pillow lace is largely turned out in the counties of Devonshire, Buckinghamshire, Oxfordshire, and Bedfordshire. The art of making lace is taught in all the dame schools of these districts, and is cultivated as a domestic industry.

The hosiery trade is carried on both in factories and in the cottages of the workers. Leicestershire is the centre of the woollen hosiery manufacture; Nottingham turns out cotton, merino, and silk hosiery; and Hinckley common cotton goods. The elastic-web trade, which combines india-rubber with cotton, silk, or wool, is limited to two towns, viz. Loughborough, in Leicestershire, and Coventry, in Warwickshire.*

Hardly inferior in importance to the textile industries is the manufacture of hardwares, and of all kinds of ware in which metals are employed. It embraces a wide range of objects, from pins and steel pens to powerful machinery, from nails to heavy ships' anchors. Hand-made wares are almost entirely manufactured in the Black Country, to the west of Birmingham, where Dudley, Cradley, and Halesowen are the great nail-making towns. The men, women, and children employed on hand-made wares work long hours and earn little, and their life is of the hardest and most cheerless. Far more prosperous are the workers in the nail factories, and still more those employed in the making of anchors.

The manufacture of locks is almost entirely confined to Walsall, Wolverhampton, and Willenhall, in South Staffordshire, and each of these towns is noted for a particular kind of lock. Most of the men employed in this branch of industry work at home. Walsall is, moreover, the principal centre for the manufacture of saddlers' ironmongery.

Pins are principally made in Birmingham, and in no other trade has time-saving machinery been introduced with greater effect. Redditch, in Worcestershire, is the centre of the needle trade, which was first introduced by Germans. The manufacture of cutlery employs between forty and fifty thousand people, of whom the majority belong to Sheffield, Birmingham, and Wolverhampton. Sheffield knives are known throughout the world, but the high reputation of English tools has not been able, in every market of the world, to triumph over the very keen

* Textile industries of the United Kingdom (1875 and 1879):—

	1875.				1879.			
	Factories.	Spindles.	Power Looms.	Operatives.	Factories.	Spindles.	Power Looms.	Operatives.
Cotton .	2,655	41,881,789	463,118	479,515	2,674	39,527,920	514,911	482,993
Woollen .	1,800	3,323,881	57,090	134,605	1,732	3,337,607	56,944	134,344
Shoddy .	962	102,080	1,437	3,431	137	83,702	2,110	5,079
Worsted .	818	2,582,450	81,747	142,097	693	2,096,820	87,393	130,925
Flax .	449	1,555,135	41,980	128,459	400	1,264,766	40,448	108,806
Hemp .	61	22,542	22	5,211	58	22,043	74	4,780
Jute .	110	230,185	9,599	37,920	117	212,676	11,288	36,354
Silk .	125	1,336,411	10,002	45,559	706	842,538	12,546	40,985
Lace .	311	—	—	10,373	283	—	—	10,209
Hosiery .	156	—	—	11,980	186	—	—	14,992
Hair and elastic web }	111	42,770	2,826	6,554	119	—	—	6,169
Total .	<u>7,288</u>	<u>51,077,243</u>	<u>667,821</u>	<u>1,005,704</u>	<u>7,105</u>	<u>47,388,072</u>	<u>725,714</u>	<u>975,636</u>

competition with American and German makers. The cutlers of Sheffield are a singular class of workers, very tenacious of their old customs, and jealous even of such alterations as would improve their sanitary condition. The grinders prefer to die young from the disease engendered by inhaling the dust which flies off the metal and the grindstones, and known as "grinder's rot," rather than use any simple appliance which would remedy the mischief.

Steel pens, screws, and buttons of every description are principally made at Birmingham. Nuts and bolts are produced at Darlaston and Wolverhampton, in Staffordshire, and near Newport, in Monmouthshire. Wire-making is carried on at Wolverhampton, Manchester, Sheffield, Warrington, and Newport.

Birmingham enjoys a reputation for its cheap jewellery, and no other place in the world can compare with it for low price joined to excellent quality; whilst the district of Clerkenwell, in London, supplies a more expensive class of goods, and is also noted for its watches. Another great seat of watchmaking is Prescot, in Lancashire, where machinery is largely employed. Electro-plated and Britannia-metal ware are principally produced in Birmingham and Sheffield, and several of the establishments in these towns enjoy a world-wide reputation.

Birmingham is famous, too, for its fire-arms, and holds a position in England analogous to that of Liège in Belgium. But if there is one branch of manufacture more than another that England excels in, it is that of machinery of every kind. The agricultural-implement works of Fowler at Leeds, Howard at Bedford, and Ransome and Sims at Ipswich, rank amongst the first establishments of the kind in the world. Manchester, Leeds, Birmingham, Newcastle, Crewe, and Glasgow are the chief seats of those vast engineering works which have done so much to make England a name for locomotives, steam-engines, and machinery of every description. Ship-yards are met with in nearly every seaport town, but the Tyne, the Clyde, Barrow-in-Furness, and Birkenhead are more especially noted for their iron and steel ships.

Pottery-making in all its multitudinous branches, from the coarsest stoneware to the most expensive china, flourishes more especially in that district of Northern Staffordshire which is known as the Potteries. Worcester has long been celebrated for its china, and there are large pottery works at Lambeth in London, and at a few other places, but two-thirds of all the pottery is made in Staffordshire. Cornwall, Devonshire, and Dorsetshire supply much of the clay used in these works. The glass trade is a good deal more scattered. Some of its principal localities are Newcastle, Sunderland, and the banks of the rivers Tyne and Wear generally; St. Helen's and Ravenhead, in Lancashire; Birmingham; Stourbridge, in Worcestershire; Glasgow and Alloa, in Scotland; and London.*

The textile industries alone give employment to about a million factory hands, independently of the large number of persons who indirectly depend upon them. The industrial population of the United Kingdom numbers about 5,000,000 individuals, not counting their dependants. This multitude finds employment

* Bevan, "Industrial Geography of Great Britain," 1880.

in the numerous factories, some of the principal amongst which we have mentioned, and in a variety of other occupations. English bricklayers, Scotch masons, Welsh smiths, and Irish navvies are at work all over the country building towns, factories, and railways. Mr. Fairbairn, in 1865, estimated the power of the steam-engines employed throughout the country as equivalent to the strength exercised by 3,650,000 horses or 76,000,000 labourers. At the present day we may fairly assume that their power equals that of 100,000,000 human beings, and if these could be distributed in equal shares amongst the inhabitants of the British Islands, every one of them would have three slaves at his disposal, with muscles of steel that never tire, and requiring no other food than coal. The annual produce of the British manufacturing industries has been estimated at £500,000,000, and is sixfold what it was in 1815; whilst the revenue derived from land and houses has, during the same epoch, only risen from £36,000,000 to £180,000,000. The wages of English factory hands vary considerably according to age, sex, skill, and the branches of industry, but upon the whole they are about a fifth higher than those paid to Frenchmen under similar conditions. They fluctuate, however, to a considerable extent, and there occur periods of depression when they fail altogether, and reduce thousands of families to the verge of starvation. Women and children are employed in large numbers, more especially in the textile industries, and although the factory laws have limited the hours of labour during which they may be employed to fifty-seven hours a week in the case of women and young persons between the ages of fourteen and eighteen, and to thirty-eight hours in the case of children between ten and fourteen, there can be no doubt that hard work exercises a baneful influence upon the physique of the factory population. Nearly all medical men are of opinion that the population of Lancashire and Yorkshire exhibits signs of physical degeneration.

The number of children physically unfit for work on the completion of the thirteenth year appears to be increasing.

COMMERCE.

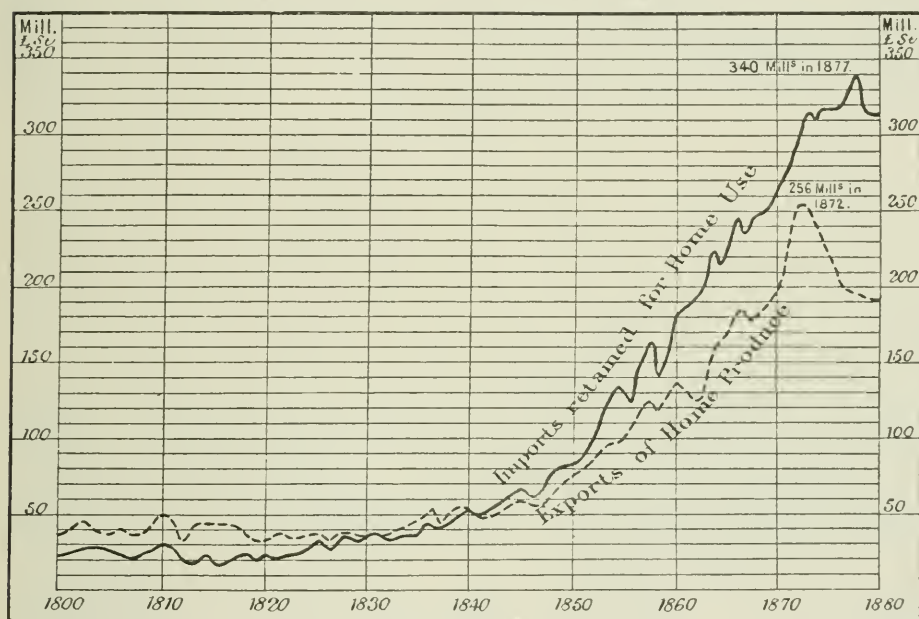
FOREMOST amongst the nations as a manufacturing country, England holds a similar position with reference to its foreign and inland commerce. Its exports and imports are equal in amount to those of France and Germany combined, and since 1866 they have never been less than £500,000,000 a year.* Between 1865 and 1879 the imports per head of the population have varied between £9 1s. 5d. and £11 15s. 10d.; the exports of British produce between £5 11s. 1d. and £8 1s. These are very large amounts when compared with those of other countries.

Year.	IMPORTS.		British Produce.	EXPORTS.		Value of Mer- chandise trans- shipped in Ports of the United Kingdom.
	Merchandise.	Bullion.		For. and Col. Produce.	Bullion.	
1865 . .	£271,072,285	£21,462,211	£165,835,725	£52,995,851	£15,092,524	£6,469,519
1870 . .	303,257,493	29,455,668	199,586,322	44,493,755	18,919,690	10,940,601
1872 . .	354,693,624	29,608,012	256,257,347	58,331,487	30,355,861	13,896,760
1875 . .	373,939,577	32,264,789	223,465,963	58,146,360	27,628,042	12,137,064
1877 . .	394,419,682	37,152,799	198,893,065	53,452,955	39,798,119	12,182,241
1879 . .	362,991,875	24,155,538	191,531,758	57,251,606	28,584,912	10,975,669
1880 (esti- mate) . }	420,000,000	16,700,000	223,000,000	60,000,000	19,500,000	12,000,000

Taking the average of ten years (1868—78), the imports *plus* exports of France only amount to £9 7s., those of Germany to £6 8s., and those of the United States to £5 a head of the total population.

The kindred nation of the United States is that with which Great Britain carries on the most extensive commerce. France ranks next, then follow Germany, British India, Australia, Holland, Russia, Belgium, British North America, and China. But if we arrange the foreign and colonial customers of England according to the value of British and Irish produce received by each, they rank in the following order:—United States, British India, Germany, Australia, France, Holland, Russia, Turkey, Cape Colony and Natal, Brazil, British North America, Belgium, and Italy.* There is not a maritime country in existence but

Fig. 226.—FLUCTUATIONS OF BRITISH COMMERCE.



its ports are frequented by British vessels, and London and Liverpool are to many amongst them the great links which attach them to the rest of the world.

As a great manufacturing country, England draws from abroad not only a considerable proportion of the raw materials used in its factories, but also a large share of the food consumed by its closely packed population. Cotton, wool, flax and hemp, corn, live animals, and provisions of every description; timber; and, amongst manufactured articles, silks and woollens, figure most prominently in the imports. Foremost amongst the exports are cottons, woollens, iron and steel, coal, machinery, linen, and manufactured goods of every kind. The customs revenue, almost exclusively levied upon tea, coffee, spirits, wine, and tobacco, yields annually about £20,000,000, and nearly one-half of it is collected in London.

* For more detailed information see Appendix, pp. 498, 499.

But whilst English merchants allow no opportunity to escape them for securing new markets for the products of British industry, whether amongst the savages of Polynesia or the uncultured negroes of Inner Africa, they find themselves shut out, by high protective duties, from the ports of many civilised nations which formerly were amongst their best customers. Nor are the British colonies the last in seeking to foster a native industry at the expense of that of the mother country.* Rival nations, which look up to England as their instructress in the processes of manufacture, have gained in experience and strength, and now compete with her in the open markets of the world. The balance of trade represented by the value between exports and imports has recently turned so much against England as to cause some anxiety.†

But it is clear that this difference cannot represent so much loss to the national capital, and must be made up from other sources. One of these is supplied by the dividends earned by English capital invested in foreign Government loans and industrial undertakings. There is hardly a country in the world which is not indebted to English enterprise and English capital for railways, telegraphs, and water works, or for a development of its industrial and commercial resources. Nearly all the submarine telegraph cables belong to England; the mines of Brazil, the railways of the Argentine Republic, and many of the sugar-mills of Egypt are the property of English capitalists. The material labour of half the world is carried on through the counting-houses of the City, and in the banks in Lombard Street the profits resulting from this immense activity keep accumulating. The annual income which England derives from her investments in foreign countries cannot be much less than £30,000,000.‡

English capitalists are aware, however, that the profits derived from manufactures may diminish in course of time, or disappear altogether, and they have consequently spared no effort to become the ocean carriers of the entire world. The profits yielded by the shipping trade do not figure in the statements of exports and imports, but they are very considerable. Britain owns about half the mercantile

* From the following statement of British exports it will be seen that their value in the case of France has increased 186 per cent. since the conclusion of a commercial treaty in 1861, whilst the exports to the United States, notwithstanding the increase of population, are now less than they were in 1860, and those to British America have fallen immensely since the adoption of protective duties:—

	France.	United States.	British North America.
1850 . . .	£2,401,956	£14,891,961	£3,235,051
1855 . . .	6,012,658	17,318,086	2,885,331
1860 . . .	5,249,861	21,613,111	3,737,574
1865 . . .	9,062,095	21,227,956	4,707,728
1870 . . .	11,643,139	28,335,394	6,784,195
1875 . . .	15,357,127	21,868,279	9,036,583
1879 . . .	14,988,857	20,321,990	5,445,130

† Excess of total imports over total exports in £:—

1855	26,851,550	1870	59,176,916
1860	44,977,990	1875	92,327,254
1865	52,250,709	1879	114,208,511

‡ Robert Giffen, "Recent Accumulations of Capital in England," estimates the total capital of the United Kingdom at £6,113,000,000 in 1865, and at £8,048,000,000 in 1875, being an increase of 40 per cent. in ten years.

fleet of all Europe, and, including the colonial shipping, more than a third of that of the whole world.* This enormous fleet, manned by over 200,000 sailors, keeps increasing from year to year in tonnage and efficiency, if not in the number of vessels. The tonnage of the steam-vessels is steadily becoming greater, and a time can be foreseen when it will equal or surpass that of the sailing vessels.†

Fig. 227.—STORNOWAY: RETURN OF THE FISHING FLEET.



The British marine is far too large to find employment in the commerce of the United Kingdom, vast though that commerce be. It puts in an appearance in

* Number and tonnage of vessels belonging to the United Kingdom:—

Year.	Sailing Vessels.	Tons.	Steam-vessels.	Tons.
1865 . . .	26,069	4,936,776	2,718	823,533
1870 . . .	23,189	4,577,855	3,178	1,112,934
1875 . . .	21,291	4,206,897	4,170	1,945,579
1879 . . .	20,538	4,068,742	5,027	2,511,233

† Tonnage of sailing vessels built and registered in 1871—75, 629,003; of steam-vessels, 1,431,343; the same for 1876—79, 649,628 and 929,605 tons.

nearly every port of the world, and successfully competes with foreigners in their own waters.* When the Suez Canal, which now joins the Mediterranean to the Red Sea, was first projected, it was feared by some that it would unduly profit Greek, French, and Italian ship-owners; but M. de Lesseps was right when he predicted that England, of all maritime nations, would derive the greatest advantages from it. The commercial interests of England in India and the East exceed

Fig. 228.—WRECK CHART.



those of all other nations, and the capital required for the construction of steamers adapted for navigating this canal was readily forthcoming.†

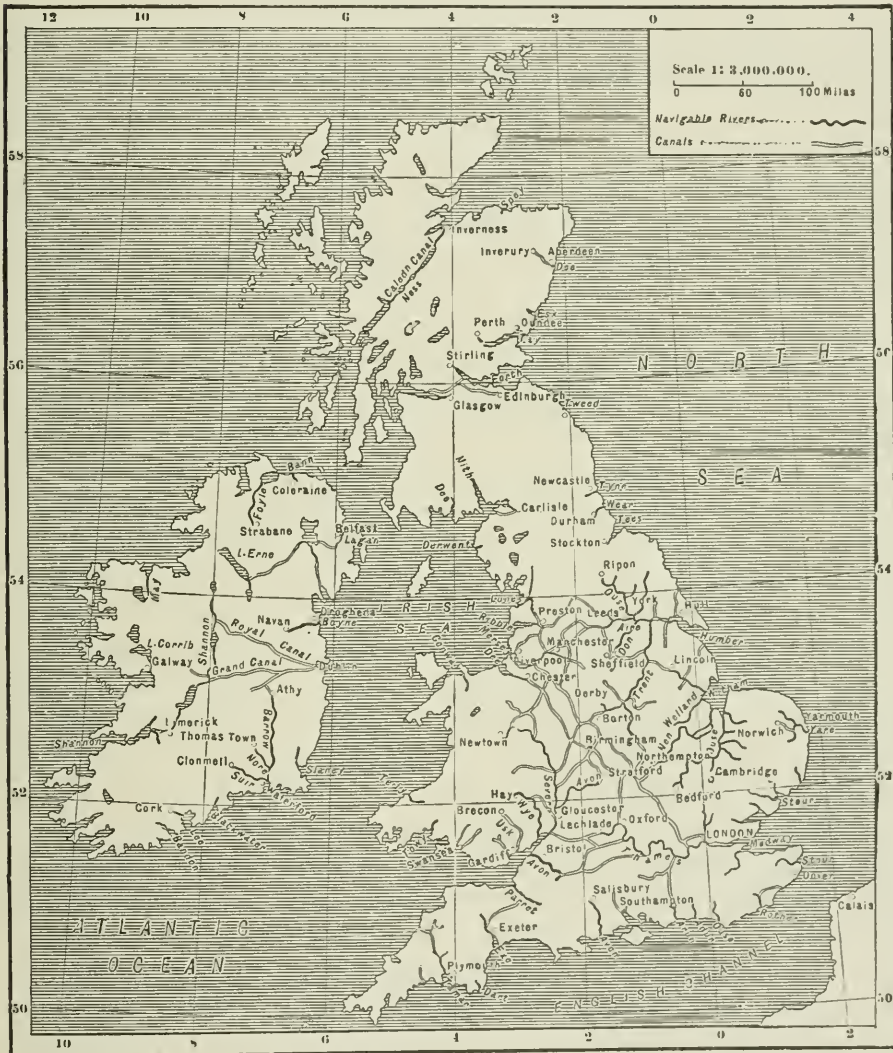
English mariners have not only taken possession of the fishing banks around the British Islands, but also frequent the waters of Newfoundland, Iceland,

* More than two-thirds of the foreign and colonial trade of the United Kingdom is carried on in British bottoms.

† Bagehot, "Lombard Street."

Baffin's Bay, and Spitzbergen. There are several ports, such as Stornoway in the Outer Hebrides, which have become trysting-places of hundreds of fishing-boats, which sometimes sail in company, like flocks of gulls taking to flight. The British fisheries employ about 26,000 boats, manned by 60,000 men, and their produce yields a considerable surplus for exportation to the continent.*

Fig. 229.—CANALS AND NAVIGABLE RIVERS.



E.G. Ravenstein Del.

The English marine is still further reinforced by a flotilla of 3,400 pleasure yachts, varying in size from a few to 750 tons, some amongst them being veritable floating palaces.

British ship-owners are not only called upon to make good the losses resulting

* Annual value of herrings and other fish, the produce of British fisheries, exported 1875-79, £1,294,470.

from vessels becoming unserviceable on account of their age, but also those they sustain through shipwreck.* Disasters of this kind occur most frequently in the vicinity of the great shipping ports, along the dangerous east coast, and amidst the rocks of the Orkneys and Shetland Islands. As far as they can be provided against by lighthouses, light-ships, sea-marks, and lifeboats, no pains have been spared, for there is not another coast in the world which is equally well provided with all that can mitigate the dangers inseparable from the navigation of the sea.

Some measure of the inland trade of the British Islands is afforded by a consideration of the state and extent of means of communication, and the incessant movement of goods and passengers along the high-roads, canals, and railways. The inland trade has grown quite as rapidly as the commerce with foreign countries. In 1763 it was only once a month that a coach started from London for Edinburgh, spending between twelve and sixteen days on the journey. As recently as 1779 a daily courier, travelling at the leisurely rate of 4 miles an hour, sufficed for carrying the mail between Ireland, Liverpool, Manchester, and thirty-two other towns.† In 1784 mail-coaches were first substituted for mounted postmen of this description. In 1755 there was not in England a single navigable canal, and transport by land had to be effected along a limited number of badly kept turnpike roads.‡ There existed, it is true, an old canal, the Fossdyke, excavated by the Romans, and made navigable again in 1670, and the navigation of several rivers had been improved, but the Bridgwater Canal, commenced in 1759, is justly looked upon as the precursor of the existing system of canals. Towards the close of last century the construction of canals was taken in hand with vigour, and between 1790 and 1810—that is, whilst the bloody wars with France made so heavy a call upon the national resources—no less than £28,000,000 were expended upon the improvement of inland navigation.§ All the more important basins are now joined to each other by means of canals. Barges can pass from the Thames into the Severn; they can climb the slopes of the Pennine range by means of locks, and proceed from the Northern Atlantic through the Caledonian Canal into the North Sea. Ireland, too, has been provided with a system of canals which connects the Shannon and Barrow with Dublin, and Lough Erne with Belfast. It is generally supposed that the introduction of railways has largely reduced the traffic over canals, and in some instances this is no doubt the case. Railways have found it to their interest to buy up canal companies, in order to avoid the necessity of competing with them; but they are by no means inclined to allow their investments to remain unprofitable, and they divert to them a portion of the traffic, which would otherwise block their roads. It may safely be assumed that the traffic over the canals is now increasing instead of diminishing.||

* Between January 1st, 1873, and May 16th, 1880, 1,965 British vessels of a burden of 729,194 tons, and 10,827 lives, were lost at sea, being an annual average of 266 vessels, 98,467 tons, and 1,468 lives.

† William Tegg, "Posts and Telegraphs."

‡ Ch. Dupin, "Force commerciale de la Grande-Bretagne."

§ Sutcliffe, "Treatise on Canals and Reservoirs."

|| Total length of canals, 2,931 miles; traffic (in England and Wales only), 25,110,000 tons in 1868, 30,000,000 tons in 1879; gross revenue yielded (United Kingdom), £1,007,413 in 1875, £2,993,373 in 1878.

England may justly feel proud of having been the first to open a railway for passenger traffic, which took place in 1825. No other country of Europe has since then expended so large a capital upon the development of its railway system, and nowhere else are locomotives called upon to carry an equal amount of merchandise or a larger number of travellers. On an average every inhabitant

Fig. 230.—RAILWAY MAP.

Scale 1 : 7,500,000.

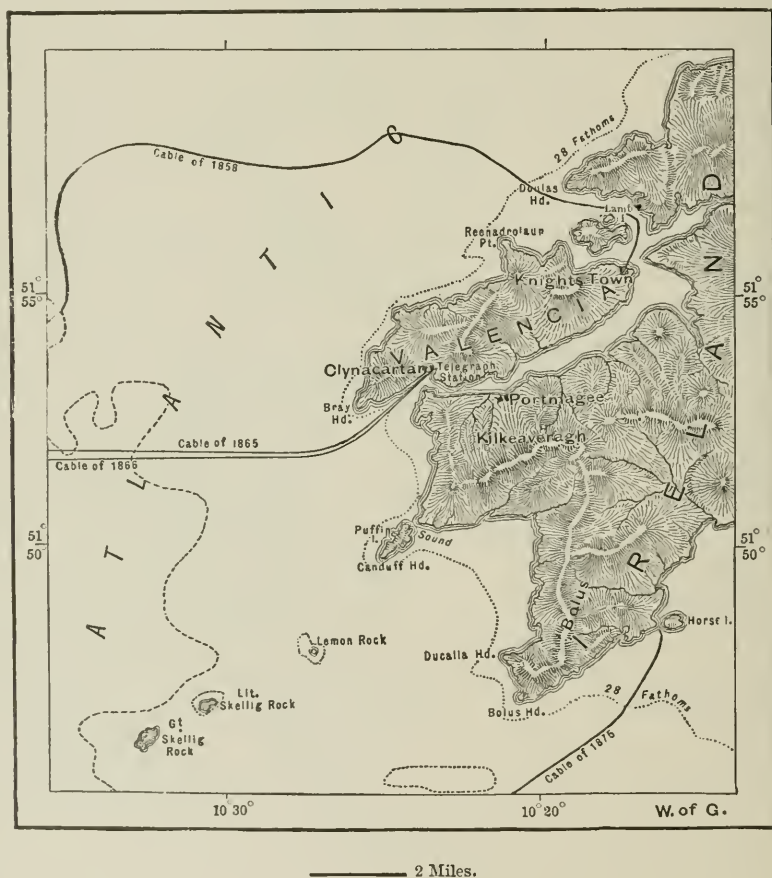


of the United Kingdom travels twenty times in each year by rail, whilst every Frenchman only does so three times. The railways of the British Islands belong to ninety-two distinct companies, but the bulk of them are nevertheless owned by a few powerful ones, such as the Great Western, the North-Western, the Midland, the Great Eastern, the South-Western, the Great Northern, the

North British, and the Caledonian, which have bought up many of the smaller concerns and increased their revenues, though not always with a due consideration for the interests of the public. On an average the net revenue of the railway companies amounts to about one-half of the gross receipts. English railway engineers have not been called upon to surmount elevated mountain ranges, but they have thrown bold viaducts across river estuaries and arms of the sea, and constructed tunnels beneath houses and rivers. The cost of carrying some of the

Fig. 231.—VALENTIA AND ITS TELEGRAPH CABLES.

Scale 1 : 225,000.



lines through populous towns has in many instances been prodigious. The number of railway accidents is unfortunately very considerable, a circumstance due in a large measure to the frequency of the trains and the speed at which they travel.*

* Railway statistics for 1879:—Length of lines, 17,696 miles; capital (including loans), £717,003,469; gross receipts, £61,776,703; working expenses, £32,045,273; net earnings, 4·14 per cent.; passengers conveyed, 680,000,000. Rolling stock:—13,174 engines, 39,877 coaches, 381,246 waggons. Accidents:—1,074 persons killed, 5,827 persons injured (including railway employés), 154 collisions.

If further evidence were wanted to prove the commercial ascendancy of England, it would be furnished by its postal and telegraph business. The telegraph lines of the British Islands are of less length than those of several other countries, but the number of messages forwarded along them is greater than elsewhere, and an average Englishman writes three letters to every one penned by another European.* Submarine cables connect the British Islands with each other and with all countries of the world. The principal points of departure of these cables are Penzance, near the Land's End, and Valencia, at the south-western extremity of Ireland.

SOCIAL CONDITION.

THERE are not wanting prophets of ill omen who point to the decrease of English exports as a proof of decay; but for the present, at all events, England is the richest country in the world. Mr. Giffen,† who bases his computations upon the income-tax returns, asserts that English capital has increased annually since 1865 at the rate of £180,000,000, and that the national wealth is consequently growing very rapidly. This wealth, however, is very unequally distributed, for England is at one and the same time a country of immense fortunes and of the extreme of poverty. More than a million persons, able-bodied men, women, and children, are wholly or partially dependent upon the parochial authorities for their support. The duty of maintaining its own poor was cast upon each parish throughout the country by the well-known statute of Elizabeth (1601), frequently amended since, but nevertheless the basis of the existing system. About 1830 the pressure from an indiscriminate giving of alms had become almost unbearable, and there were parishes which broke down under the burden. The height of the poor rates sometimes compelled landlords to give up their rents, and farmers their tenancies, from sheer inability to pay them. In the village of Cholesbury, in Buckinghamshire, only 35 persons out of a total population of 139 souls supported themselves. In the parish of Sunderland, which at that time had 17,000 inhabitants, no less than 14,000 persons were in receipt of relief from the poor rates.‡ This was the alarming state of things when, to inquire into the working of the Poor Laws, a royal commission was appointed, whose labours resulted in the Poor-Law Act of 1834. This Act revived the workhouse test and the wholesome restrictions upon voluntary pauperism, which had been removed from a feeling of mistaken humanity. England is divided, for Poor-Law purposes, into a number of "Unions," consisting on an average of twenty-five parishes or townships each. Each of these unions has its Board of Guardians, elected by the ratepayers. In Ireland the Poor Law is administered in pretty much the same manner as in England, but in Scotland Poor-Law unions are unknown. The relief is there granted by the parochial

* In 1879-80 there were delivered by post 1,128,000,000 letters (33 per head of the population), 345,000,000 book packets and newspapers, and 115,000,000 post cards: 23,385,416 messages were forwarded by telegraph.

† "Recent Accumulations of Capital in England."

‡ Pretyman, "Dispauperization."

authorities, and these are almost exclusively under the influence of the Church and the landed proprietors.

The growing wealth of England as a whole has not by any means enriched the landed proprietors and merchants only, for the middle and even the lower classes have largely shared in it. There can be no doubt that the number of paupers has greatly diminished. Since 1849, notwithstanding the very considerable increase of the population and the fluctuations unavoidable in a country mainly dependent upon commerce and manufactures, the number of paupers exhibits a very satisfactory decrease,* and this decrease becomes still more striking if we take into account only the able-bodied adults.† It will thus be seen that at least a portion of the wealth which annually flows into the British Islands, instead of swelling the fortunes of great merchant princes, finds its way into the pockets of the needy; indeed, we need only enter the houses of the working classes in order to obtain an idea of the general ease enjoyed by the mass of the people. The furniture is substantial, the floor carpeted, and the chimney mantelpiece not devoid of "ornaments." The English artisan in the enjoyment of regular wages is, in fact, much better lodged than the majority of French peasants and small tradesmen. The savings of the English working classes are enormous. They do not all find their way into the savings banks,‡ but are largely invested in the funds of friendly and other co-operative associations of every description. Friendly Societies, or, as they are called in an Act of Parliament passed in 1793 for their regulation, "Societies of Good Fellowship," have existed in the British Islands from very remote times. The most powerful amongst these associations, whose principal object it is to provide against sickness and death, are the Manchester Unity of Odd Fellows and the Ancient Order of Foresters, whose "lodges," or "courts," are to be found in every town and in many villages of the United Kingdom. They muster about a million members, and have saved up a capital of nearly seven millions sterling. Of Co-operative, Industrial, and Provident Societies there are about 1,500, with 300,000 members, and annual sales to the extent of £15,000,000 sterling. The foremost place amongst this class of societies is due to the Equitable Pioneers of Rochdale,

* Number of paupers relieved from the rates on January 1st in England and Ireland, and on May 14th in Scotland:—

	England and Wales.	Scotland.	Ireland.	Total.	Percentage of Population.
1849 . . .	934,419	82,357	620,747	1,637,523	6·1
1853 . . .	798,822	75,437	141,822	1,016,081	3·7
1858 . . .	908,186	79,199	50,582	1,037,967	3·6
1863 . . .	1,142,624	78,717	66,228	1,287,569	4·4
1871 . . .	1,081,926	123,576	74,692	1,280,094	4·1
1877 . . .	728,350	96,404	78,528	803,282	2·4
1880 . . .	837,940	98,000	100,856	1,036,796	3·0

† Able-bodied adults relieved on January 1st of each year in England and Wales:—1849, 201,644 1863, 253,499; 1877, only 92,806; 1880, in consequence of a succession of years of depression, 126,228.

‡ Savings banks at the close of 1879:—

	Depositors.	Capital.
Old Savings Banks	1,506,714	£43,797,805
Post-Office Savings Banks	3,347,828	32,102,134

who cannot claim to have originated co-operation, but who have given a wonderful impulse to the movement. Very important, likewise, are the Building Societies, which expend annually about £2,000,000 upon the purchase of land and houses. As to the Trade Unions, whose principal object it is to regulate, and, if possible, to raise the wages of the industrial classes, their number is very considerable. Mr. Howell estimates it at 3,000, with 1,250,000 members, and an annual income of nearly two millions sterling. One of the most numerous amongst this class of societies is that of the agricultural labourers, which at one time numbered 90,000 members, but has recently greatly fallen off: one of the most powerful is that of the mechanical engineers.*

Crime has diminished at such a rate and with such steadiness as to make it certain that there can be no question of a fluctuation merely due to temporary causes.† We cannot doubt after this that, owing to the progress of education and other causes, manners in England have become milder. Although assaults and murders are still more numerous than in France, they decrease from year to year. As to the minor offences, it is difficult to institute a comparison between the two countries, and if they are more numerous in France, this may be due to the greater severity of French magistrates. All Ireland swells the criminal statistics to a less extent than the metropolis, in which about one-third of the crimes placed on record are committed. Drunkenness is one of the most widely spread vices in England,‡ and a foreigner walking through the towns is, above all, struck by the large number of drunken women he meets with in the streets. Insanity, resulting from an abuse of strong drink, is becoming very frequent. Yet it is from drink and its abuse that the English Government derives a considerable proportion of its revenue; and the Established Church, too, takes its share, for it is the proprietor of several hundred much-frequented public-houses.

It cannot yet be asserted that all the children of the United Kingdom are in the receipt of even an elementary education, nor could the schools accommodate them if their parents desired to send them there. Great progress has nevertheless been made in public education within the last few years. Up

* Friendly societies, &c., as far as returns have been received (1878):—

	Number.	Members.	Total Assets.
England and Wales	12,300	4,692,175	£12,148,609
Scotland	550	569,275	667,366
Ireland	331	42,551	151,824
British Isles	13,181	5,304,001	12,967,799

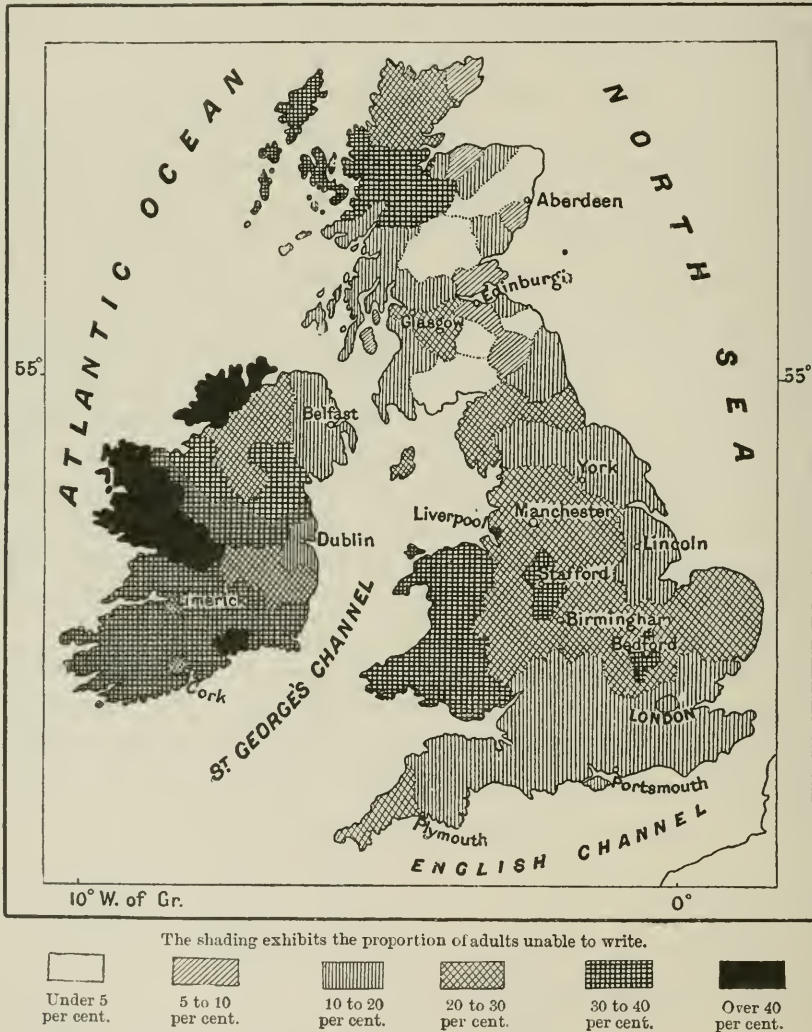
† Number of criminal offenders convicted:—

	England and Wales.	Scotland.	Ireland.	Total.	Per Mille of Population.
1849	21,001	3,274	21,202	45,477	1·2
1853	20,756	2,821	8,714	32,291	1·1
1858	13,246	2,850	3,350	19,446	0·7
1863	15,799	2,438	3,285	21,522	0·7
1871	11,946	2,184	2,257	16,387	0·5
1877	11,942	2,009	2,300	16,251	0·5
1879	12,525	2,090	2,207	16,822	0·5

‡ Dawson Burns estimates the beer, wine, and spirits consumed in 1873 at 152,478,920 gallons, being equal to 7,260,000 gallons of pure alcohol. The enormous sum of £126,000,000, or £3 16s. a head, was expended, according to him, upon drink.

to 1818, in which year Parliament for the first time concerned itself with the subject, the establishment of schools was left to private initiative. In 1833 an annual grant of £20,000 was voted, and increased in 1839 to £30,000, its dispensation being intrusted to a Committee of the Privy Council, who appointed inspectors to report on the schools desirous of participating in Government aid. These and other measures, more especially the establishment of

Fig. 232.—EDUCATIONAL MAP.



training colleges for teachers, had powerfully promoted public education; but they had shown, too, that voluntary efforts were not sufficient to meet the wants of all children of school age. Hence the Act of 1870, which provided for the establishment of board schools in all those districts in which the school accommodation was insufficient, and adopted compulsion as a means of filling the schools. A similar Act for Scotland was passed two years afterwards. As to Ireland, it had already been provided with a system of "national schools."

The system of higher education as now existent is by no means the outcome of a plan laid down in advance. It is due to the initiative taken by religious bodies, educational societies, and private individuals, and Parliament is slow to interfere with schools not founded or subventioned by the State. At the present time about 20,000 primary schools in England and Scotland, affording accommodation to one-seventh of the population, are in receipt of Government aid, and are regularly inspected. The number of persons unable to write is annually decreasing as the younger generation grows up. Illiterates are most numerous in Western Ireland, in Wales, in the Scotch Highlands—that is, in those districts where many of the inhabitants still speak Celtic—and in certain manufacturing districts of England and Scotland.

The number of children who attend superior schools in England is less than in France. The English public schools and colleges, which give an education analogous to that of the French “*Lycées*,” are attended by only 20,000 pupils, whilst the corresponding French schools count 157,000 pupils. Schools of this kind are considered higher than the grammar schools, and are looked upon as being intended only for the rich or titled, whilst in France they are thrown open to all the children of the middle classes, and help to recruit them.*

The State seldom interferes directly with higher education. It does not concern itself with the superintendence of the educational establishments intended for the upper classes, but leaves the supreme control of each of them to its own special governing body. The members of the governing body are variously appointed, *e.g.* the University of Oxford may send two representatives, or the Lord Chancellor one, and so on. To some of the great endowed schools the State has granted charters of incorporation: in several of them the process of eliminating ancient abuses has been singularly slow. The use of the term “*public school*” is nearly as inaccurate as it is frequent, but, to speak exactly, it means a school possessing a charter of incorporation, and in which the advantages of the endowment belong equally to all her Majesty’s subjects. At Winchester, the oldest of the public schools, there are “*Foundation Scholars*” and “*Exhibitioners*,” who are maintained wholly or in part at the expense of the institution, and, far outnumbering them, “*Commoners*,” whose parents pay for their board and instruction. The annual cost of keeping a boy at one of these schools averages £120. At Eton and Harrow it is considerably more, but these two in particular are frequented by the sons of wealthy Englishmen anxious to become acquainted and associate with men of birth. In all the great schools, as indeed at both the great universities, the spirit of athleticism rules supreme. While, on the one hand, the statesmen of England, many of its bishops, judges, and leading scholars trace the beginnings of their successes to the manly breadth of tone of a public school; on the other, specimens of bigoted ignorance and despotic stupidity are but too frequent. At the two great Universities of Oxford and Cambridge the ecclesiastical element, until the middle of this century, largely predominated. Cambridge had originally a great name for the study of mathematics only; Oxford for that of the Greek

* Matthew Arnold, *Fortnightly Review*, November, 1878.

and Latin classics. We say originally, for, in accordance with the requirements of the present day, there are already to be found in both flourishing schools of law, history, science, medicine: theology has, of course, always been prominent. There no longer exist religious tests, and amongst the "fellows" of colleges there are now even men who are the declared enemies of the Church as by law established. A large proportion of the students, especially of the less wealthy, take holy orders on leaving the university; but even this number does not suffice for the vastly increased needs of the Church, and the bishops loudly cry out for more university men as candidates for ordination. Formerly Oxford was the great stronghold of the Tories, Cambridge that of the Whigs; but now the latter holds moderate views, whilst Oxford represents the extremes of both parties in the State—those of the most rigid Conservatives no less than those of the most extreme social reformers.*

The monopoly formerly enjoyed by the ancient seats of learning was destroyed by the foundation of the University of London, which was empowered to grant degrees to all, without distinction of rank, sect, party, creed, or place of education. The "colleges" from which the majority of the London graduates are drawn are scattered all over the country. The schools at which a professional training may be obtained are very numerous, and constantly increasing. Medical schools exist in connection with most of the large hospitals; the "benchers" of the four Inns of Court have taken steps to provide facilities for studying law; a Royal School of Mines is doing excellent service in training geological surveyors and mining engineers; and there are, of course, the usual schools for the professional education of military and naval officers. But there is no great technical high school, such as the *École Polytechnique* of Paris, and it is quite evident that English civil engineers of the old school prefer a practical training to a course of theoretical knowledge imparted at engineering colleges. Something in the way of elementary technical education is, however, effected in the Science and Art Schools, which depend upon the South Kensington Museum, and which are attended by 90,000 pupils, and great hopes are entertained of a technical university recently projected by the great livery companies of the City of London.

As to the teaching to be obtained through newspapers, books,† and public lectures after the school and university days are over, it is exercising a growing influence upon the life of the nation. Other countries may have established newspapers before England did so, but the strength of the press as a political power was first felt here during the revolution which led to the downfall of Charles I. Public meetings, which have become so great a feature of political and social life, were first held in 1769, in accordance with the formalities still observed at the present day.

* Universities of England:—Oxford, Cambridge, London, Durham, Manchester (Victoria University). Of Scotland:—Glasgow, Edinburgh, St. Andrews, Aberdeen. Of Ireland:—Trinity College, Dublin, and the Royal Irish University.

† Number of books published:—1875, 4,854; 1876, 4,885; 1877, 5,095; 1878, 5,315; 1879, 5,834. The number of newspapers is about 1,900.



CHAPTER XVII.

GOVERNMENT AND ADMINISTRATION.

THE United Kingdom, in many respects, is still governed by feudal institutions. Wherever we look, whether to the tenure of the land or the administration of local affairs, we still find traces of an order of things very different from what has been established by the English colonists who have made themselves a new home in Australia or New Zealand. The three kingdoms are each governed separately, and in many instances their laws not only differ, but are contradictory of one another. The administrative divisions of each kingdom, the counties or shires, differ considerably in size, and the old county boundaries coincide in but few instances with those of the Registrar-General of Births, Deaths, and Marriages. The old "hundreds" into which the counties are divided possess hardly more than an historical interest at the present day. When these divisions were first constituted ten free families occupied 100 hides of land, or a "tything," and ten of these tythings were formed into a hundred. But so great have been the changes in the population since these early times, that whereas there are some hundreds the population of which has hardly increased, there are others which count their inhabitants by many thousands. In several counties the hundreds are known as wapentakes, wards, laths, or liberties. These, however, are not the only administrative divisions, for there is hardly a department of government which has not subdivided the United Kingdom to suit its own purposes, and the confusion which arises from this indiscriminate parcelling out of the land is sometimes very great, and ought certainly to have been avoided.*

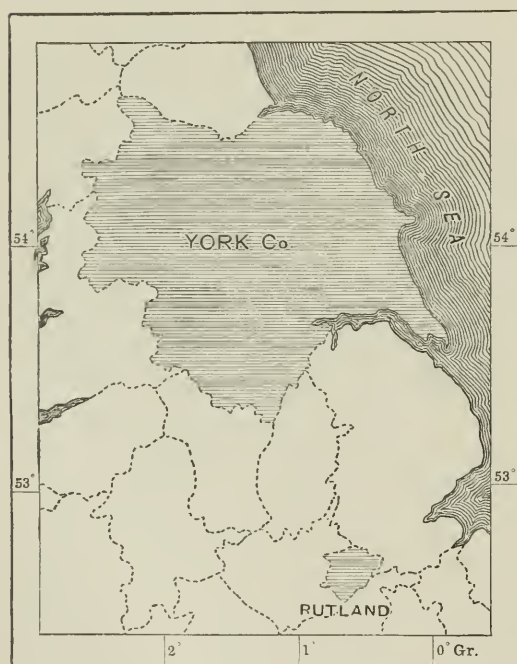
A very prominent position amongst the local divisions of the kingdom must be accorded to the municipal boroughs, originally no doubt of Roman foundation, but subsequently remodelled in accordance with the spirit of the Anglo-Saxons,

* The 52 counties of England are separated, for parliamentary purposes, into 95 divisions, 185 boroughs, 13 districts of boroughs, and 58 contributory boroughs: for sessional purposes they include 700 petty sessional divisions and 97 boroughs, having commissions of the peace. There are 818 hundreds, or analogous divisions, and 621 lieutenancy subdivisions. The police know only 455 police districts of counties, and 167 boroughs and towns, having their own police. There are also 404 highway districts 721 local board districts, 14,946 civil parishes, &c.

and furnished with charters by the Norman kings. Some of these ancient municipal towns have dwindled into mere villages, a few have even altogether disappeared, but several of them have grown into large and important cities. Other populous towns, whose rise only dates from the modern development of industry, have likewise claimed incorporation, and charters have been granted them by Parliament. There existed at the time of the 1871 census 224 of these municipal boroughs, all of them, with the exception of the City of London and a few small decayed places of little note, governed by the Municipal Corporation Reform Act of 1832. Each corporation consists of a mayor, aldermen, and councillors, the two latter being elected by the burgesses, the

Fig. 233.—YORKSHIRE AND RUTLANDSHIRE CONTRASTED.

Scale 1 : 3,500,000.



mayor by the aldermen and councillors. The mayor and ex-mayor of all boroughs are justices of the peace, and in many of the more important amongst them stipendiary magistrates have been appointed. The corporation generally attends to police, paving, lighting, drainage, and local improvements, and in a few instances supplies gas and water. Almost equally extensive is the power of self-government of the 575 towns or districts which have elected to be regulated by the Local Government Act of 1858, and each of which has its local board. The county authorities, on the other hand, are appointed by the Crown. The Lord-Lieutenant, in former times, had command of the military forces of the county, but his duties now are hardly more than honorary. He still recommends persons for

commissions in the militia, or for appointment as deputy-lieutenants and county magistrates. These last, united in courts of quarter or general sessions, are the real governors of the counties, for they regulate the expenditure and impose the rates for its defrayal. The sheriff, who returns the juries, executes the judgments of the courts, and is in his county the principal conservator of the peace, is annually appointed by the Crown. Each civil parish has its overseers of the poor, who look to the assessment and collection of the poor, county, police, and other rates. Poor-Law Unions consist of several civil parishes united for the purpose of administering relief to the poor. Each of these unions has a board of guardians, partly elected by the ratepayers and owners of property, and partly consisting of resident county magistrates and other *ex-officio* members. All these

persons engaged in the local government of the country render their services gratuitously.

Political representation in the United Kingdom, in accordance with the traditions of the Middle Ages, is not an inherent right, but a privilege dependent upon being properly qualified. Changes in the old electoral laws have no doubt brought the English practice more in consonance with modern ideas; but this renders existing inequalities all the more striking. By the last Reform Bill, passed in 1867, the electoral franchise in English counties is enjoyed by all freeholders, by copyholders and tenants for life whose estate has a clear annual value of £5, and by occupiers of lands or tenements of the ratable value of £12 and upwards. In boroughs the franchise is attached to the occupation of a dwelling-house separately rated to the poor rates, or of a lodging of the annual value of £12. In Scotch boroughs all householders paying rates have the franchise, whilst in Irish boroughs a house rental of £4 or an unfurnished lodging worth £10 a year confers this privilege. The universities are likewise entitled to send their representatives into Parliament.* It is quite clear that the conditions attached to the franchise exclude from its exercise not only many of the artisans who live in towns, but also the entire body of agricultural and other labourers. More than two-thirds of the adult male population are shut out from every exercise of political rights, and in Ireland, where poverty is great, only one man out of eight enjoys the privileges of an elector. The county members represent, in fact, the landed proprietors and the farmers; the borough members the middle classes. Women, though allowed to vote for school boards and in parochial matters, when properly qualified, have not hitherto been granted the political franchise.†

Owing to changes in the population, the existing distribution of seats amongst the constituencies does not represent their numerical proportions. Several large towns are not represented at all, whilst some small places of no importance whatever, by virtue of ancient charters or acts of royal favour, considered to confer historic rights, still return one or two members to Parliament. As an instance we may mention Croydon, with over 100,000 inhabitants, which is not represented at all, whilst Marlborough, with less than 700 voters, returns one member. To every member of Parliament there are theoretically about 50,000 inhabitants; but there is hardly a large town in the United Kingdom where this proportion is adhered to. London, for instance, with its immense population, would be entitled to nearly 100 representatives, but is compelled to rest content with 22, besides which, the various quarters of the metropolis are very unequally favoured, the "City" enjoying a decided preponderance over the other boroughs.

* Composition of the House of Commons:—

	England and Wales.	Scotland.	Ireland.	Total.
Borough members . . .	293	26	37	356
County members . . .	187	32	64	283
University members . . .	5	2	2	9

† In 1877 the number of electors was 2,911,339, viz. 1,771,521 in boroughs, 1,115,100 in counties, and 26,718 in universities.

The origin of the House of Commons is lost in the darkness of the Middle Ages, but it is almost universally admitted that the third estate was summoned to the councils of the nation for the first time in 1264. Simon de Montfort, in his struggle with Henry III., felt constrained to seek allies amongst the towns, whose representatives were subsequently invited to take their seats by the side of the peers and great ecclesiastics in Parliament. The Commons have not lost ground since that period, and at the present time they virtually hold the reins of government, not directly, but through a council of ministers. The House does not, indeed, dictate the names of the ministers to the sovereign; but inasmuch as the existence of a Cabinet is dependent on the possession of a majority in the House of Commons, the wishes of the latter have to be considered in the appointments made by the Crown. Parliament is summoned by the sovereign, and may be prorogued or dissolved by him. It meets annually, and although its normal duration is fixed at seven years, it has not once happened, since the union with Ireland, that the House of Commons has died a natural death.

The House of Lords consists of peers who occupy their seats by hereditary right, by creation of the sovereign, by virtue of office—as in the case of the English bishops—or as elected representatives of the peerage of Scotland and Ireland. The House of Peers takes precedence of the House of Commons, and the royal “speech” or message is read within it, the peers being seated, whilst the Commons, headed by their Speaker, attend below the bar. For many years the peers looked upon the House of Commons as a sort of dependency to their own House, in which they found place for their younger sons, relatives, and dependants; but the Lower House, having acquired the exclusive right of voting the supplies, is now at least equal to it in importance.

The executive power is nominally vested in the Crown, but practically exercised by a Cabinet, or committee of ministers, appointed by the sovereign. The “leader,” or recognised chief of the most powerful party in the House of Commons, is, as a rule, summoned to fill the office of First Lord of the Treasury, or Prime Minister, and he selects his colleagues amongst those members of the two Houses who are friendly to his views. Every Cabinet, in addition to the First Lord, includes the Lord Chancellor, the Lord President of the Council, the Chancellor of the Exchequer, and the Secretaries of State. As a rule, however, several other ministerial functionaries have seats in the Cabinet, those most frequently admitted being the Chief Commissioner of Works and Buildings, the Chancellor of the Duchy of Lancaster, the First Lord of the Admiralty, the President of the Board of Trade, the Postmaster-General, the Chief Secretary for Ireland, and the President of the Local Government Board. Numerically this Cabinet is stronger than that of any other state whose constitution is modelled upon that of England; but the traditions of an ancient kingdom and the needs of a widespread colonial empire amply account for this. The Privy Council consists of a large body of men of high birth and eminence, sworn to “truly and impartially advise” the sovereign; but the functions formerly exercised by it have devolved upon the Cabinet or the Judicial Committee, and it is now very rarely that the Council is assembled to

deliberate on public affairs, and on these occasions only those councillors attend who are specially summoned. Although England has not inaptly been described as an oligarchic republic, the sovereign is supposed to wield not only the executive powers, but also a portion of the legislative ones, for no Act of Parliament can become law without his signature. But the royal signature is rarely refused, and if the influence exercised by royalty is very great in England, this is chiefly due to the deference exhibited by the leaders of the Houses of Parliament, and the feeling of respect and loyalty which penetrates all classes of the people. The succession to the crown is settled on the heirs of Princess Sophia of Hanover, being Protestants. The Queen, by virtue of a recent Act of Parliament, bears also the title of Empress of India. She enjoys a civil list of £385,000, and, in addition, the revenues of the Duchy of Lancaster, amounting to about £45,000 annually. The Prince of Wales is paid an annuity of £40,000, and the revenues of the Duchy of Cornwall (£66,000). The other annuities payable to the members of the royal family amount to £121,000, making a total civil list of £656,000—a small sum, when compared with what is paid to the reigning families of some other countries.

The law throughout the British Empire is administered in the name of the Queen Empress. The inferior criminal jurisdiction in the counties is exercised by Justices of the Peace, appointed by the Crown on presentation by the Lord-Lieutenant. These unpaid magistrates hold petty sessions for the summary disposal of minor offences, and courts of quarter sessions for the trial of more serious crimes and misdemeanours. In boroughs these duties are generally discharged by stipendiary magistrates and recorders, also appointed by the Crown. Minor civil cases are disposed of in county courts, but all more serious law business, whether of a civil or criminal nature, is referred to one of the divisions of the High Court of Justice in London, whose judges annually go on circuit and hold assizes in the principal towns of the kingdom. There is a Court of Appeal, presided over by the Lord High Chancellor, and the House of Lords is the final Court of Appeal. The procedure of English criminal courts is scrupulously careful to surround the accused with every safeguard to insure a fair trial. He need reply to no questions which may incriminate him, and it is for his accusers to produce evidence establishing his guilt. The verdict of the jury—an institution which has spread from England into nearly every country of the world—must be unanimous.

The Lord High Chancellor, in addition to his other titles, bears that of “Keeper of her Majesty’s Conscience,” and the sovereign, since Henry VIII., has called himself Defender of the Faith. These titles point to the existence of a State Church, and in reality half a century has scarcely elapsed since every Government official was required to be a member of the Church as by law established, and no marriage was valid except it had been celebrated by a minister of this Established Church. In Ireland the Anglican Church was disestablished in 1871, and its ministers and members now occupy legally the same footing as do the members of other

churches, including that of Rome. But in England the Protestant Episcopal Church is still the Established Church, and many of its clergy are paid by tithes. The bishops of the Church of England enjoy an average income of £5,200 apiece, and the cathedral establishments possess a numerous staff of archdeacons, deans, canons, and other dignitaries, who are likewise in receipt of considerable salaries derived from ancient foundations. The average annual

FIG. 234.—DIOCESAN MAP OF THE BRITISH ISLES.



value of a "living" is about £300, in addition to which the incumbent is usually placed in possession of a parsonage. Besides the rights of presentation pertaining to the Queen, the Lord Chancellor, the bishops, and the various public bodies, there are thousands of livings in the gift of private individuals.*

* Of 13,076 livings, of an annual value of £4,176,317, 8,151 (£2,535,760) are in the gift of private persons; 3,472 (£1,109,171) in the gift of the bishops; 774 (£318,500) in the gift of universities and schools; 679 (£212,886) in the gift of the Lord Chancellor, &c.

Out of thirty-one bishops connected with English sees only twenty-four have a seat in the House of Lords, though all alike are "Lords" by courtesy. Nor are the seven bishops of the Episcopal Church of Scotland, and the two archbishops and ten bishops of the Church of Ireland, admitted to the House of Lords. There are also sixty-two colonial and eleven missionary bishops in connection with the Church of England.

In Scotland the Established Church is Presbyterian in principle, and is governed by Kirk Sessions, Presbyteries, Synods, and the General Assembly, which consists of both clerical and lay deputies from each of the presbyteries, and representatives from the universities and royal burghs. This Church, since 1843, has ceased to be the Church of the majority, for in that year the enforcement of an obnoxious patronage act, since repealed, led to the formation of a Free Church, whose adherents are nearly as numerous as those of the mother Church.

Foremost amongst Dissenting bodies are the Wesleyan Methodists, the Independents or Congregationalists, the Baptists, and (in Wales) the Calvinistic Methodists. Not very numerous, but influential through wealth, education, and cohesion, are the Quakers.

It is only during the last fifty years that full political rights have been granted to Roman Catholics and Jews—to the former in 1832, to the latter in 1858. The Jews are nearly all to be found in the large towns, four-fifths of them living in London.* The number of Roman Catholics has very much increased in the course of the century.† In the reign of Queen Elizabeth they are said to have constituted one-third of the total population, but in 1699 they had dwindled down to an insignificant fraction. These were the times of penal enactments, and although after 1787 the laws were not very rigorously enforced, and an

Fig. 235.—DISTRIBUTION OF THE ROMAN CATHOLICS.



* Number of Jews in Great Britain (1877), 51,250, of whom 38,880 live in London. Jews in Ireland (1871), 258.

† Roman Catholics in England, 1699, 27,696; 1767, 67,916; 1845, 284,300; 1851, 758,800; 1861, 927,500; 1880, 1,120,000.

Act ameliorating the position of the Roman Catholics had even been passed, their numbers did not increase, and remained almost stationary till about the middle of the present century, when the great influx of Irish immigrants caused it to spring up by a sudden bound. The Irish immigration altogether swamped the older English Roman Catholics, who had survived the period of prosecution, and our map (p. 481) shows very distinctly that they are most numerous in those counties in which the Irish element is most strongly represented. The "Ritualistic" movement in the Anglican Church may have brought a few converts to the Church of Rome, but a somewhat careful inquiry into the religious statistics of Great Britain enables us to state with confidence that the increase in the number of Roman Catholics is more than accounted for by Irish immigration, that there have been none of those wholesale conversions of Protestants which are occasionally talked about, and that since the decrease of Irish immigration there has likewise been a decrease in the proportion of Roman Catholics. At all events, they increase no longer.

Religious zeal is very great amongst Englishmen, and still greater amongst Scotchmen. This religious fervour of the British Islanders manifests itself in the enormous sums which are annually collected by voluntary agencies for building and endowing churches and chapels, printing Bibles and tracts, and sending missionaries into every quarter of the world. Ethnically this zeal for religious propaganda, exhibited at all times, is a remarkable phenomenon. Julius Cæsar stated, and modern researches have confirmed his opinion,* that it was from Great Britain the Druid missionaries spread all over Gaul with the intent of converting the natives. Subsequently, when the ancient gods had been overthrown by Christianity, it was again by British missionaries that the new faith was carried into the woods of Germania, and the sacred oaks hewn down. Nearly all the numerous Protestant sects which have sprung into existence since the Reformation are plants of British growth, disseminated from England and Scotland into other parts of the Christian world. Nor is there any country at the present day which supports a greater number of missionaries in heathen lands, or expends larger sums upon religious objects.†

England, whose travellers, missionaries, and merchants have invaded every quarter of the globe, has become the great colonial power of the world, holding sway over one-fifth of the total population of the globe, and equal in extent to all the

* D'Arbois de Jubainville; Ernest Desjardin's "Description de la Gaule Romaine," ii.

† Population of the British Islands according to religious belief (an estimate for 1880):—

	Protestant Episcopal Churches.	Other Protestants.	Roman Catholics.	Jews.
England and Wales	19,314,000	5,000,000	1,120,000	46,000
Scotland	80,500	3,225,000	350,000	5,400
Ireland	660 000	590,000	4,114,000	300
Total	<u>20,054,500</u>	<u>8,815,000</u>	<u>5,584,000</u>	<u>51,700</u>

colonies and foreign possessions of the other European states combined.* But notwithstanding the vast extent of her colonial empire, Great Britain is content with a standing army numerically far inferior to the forces maintained by any of the other great powers. The conscription of continental Europe is unknown, and the forces of the United Kingdom are without exception dependent upon voluntary enlistment for their recruits. These latter usually join between the ages of seventeen and twenty, and they enlist for a short term of three years' service, after which they enter the army reserve. In this they remain for nine years, drawing a small monthly allowance, on condition of their rejoining their regiments when called upon. Service in the army can scarcely be said to be popular in England, and the number of deserters is very large, amounting on an average to 31 per cent. of the recruits enlisted.

The regular forces, numbering close upon 200,000 men, are primarily intended for service in the colonies, India, and abroad. In case of need they can be reinforced by the Militia, the Yeomanry, and the Volunteers, and although military martinets may occasionally sneer at these latter, they will no doubt prove useful auxiliaries in case of peril, more especially in the defence of the national territory.†

None of the inland towns of the British Islands are fortified, for though the mediæval walls and castles of some amongst them are objects of interest to archæologists and admirers of the picturesque, they possess little military value. Suggestions have been made for constructing a series of entrenchments on the heights which screen London on the south, and opposite to one of the breaches in which, at Aldershot, a military camp of exercise has been established, but nothing further has been done in the matter. Along the coast, however, fortifications of a very formidable character are numerous, and not a bay or estuary turned towards the continent has been left without its artificial defences. But it is to her navy that England looks as her main defence against foreign aggression, and no

* European colonies (according to Behm and Wagner):—

	Area. Sq. Miles.	Population.
British Colonies	8,344,492	254,992,100
Dutch „	763,365	27,106,000
French „	237,600	6,448,600
Spanish „	170,070	8,714,000
Portuguese „	705,980	3,644,000
Danish „	75,130	130,600
Russia in Asia	6,340,000	14,171,000
Total	16,636,637	315,206,300

For a detailed statement on the British Colonies see Appendix, pp. 502, 503.

† Effective strength of the military forces of England, January 1st, 1880:—

Regular Forces	{ At Home	91,421
	{ In Colonies	32,744
	{ In India	67,639
Army Reserve	{ 1st Class	16,651
	{ 2nd „	22,021
Militia		113,484
Yeomanry		10,508
Volunteers		206,265
Total		560,733

pains are spared to keep at the head of all maritime powers. The English fleet of ironclads, headed by the *Inflexible*, a vessel of 11,406 tons displacement, with engines of 8,000 horse-power, plated armour between 16 and 24 inches in thickness, and four 81-ton guns, is superior in strength to the combined ironclad fleets of any two of the other powers, and looking to the resources which England commands with respect to everything relating to the construction, repair, and maintenance of modern men-of-war, it will be easy for her to maintain her pre-eminence.* The navy is manned by 45,800 sailors and 13,000 marines, in addition to whom there exists a naval reserve of 20,000 men.

But however formidable the military and naval forces may appear, Great Britain is still more powerful from a financial point of view, and in this respect occupies quite a privileged position amongst the states of Europe. The national debt is no doubt greater than that of any other country, with the exception of that of France; but since the termination of the great wars at the beginning of the century it has been reduced to the extent of £70,000,000, and looking to the large increase in the productive forces of the nation, its burden is felt much less now than was the case half a century ago. This decrease of the debt is all the more remarkable as £20,000,000 were expended to release the slaves in the British colonies, and £10,000,000 for the relief of the Irish famine in 1847. The annual

* The British Navy October, 1880 (including vessels under construction):—

IRONCLADS.				
	Number.	Guns.	Tons.	Horse-power.
Turret ships, 1st class	9	42	85,342	61,320
„ others	12	49	52,015	34,927
Broadside vessels	26	406	203,217	142,375
Barbette ship (<i>Collingwood</i>)	1	10	9,150	7,000
Torpedo ram (<i>Polyphemus</i>)	1	—	2,640	5,500
Corvettes	3	19	12,834	11,803
Gunboats	3	12	3,795	2,213
Floating batteries	2	16	3,688	—
Condemned ironclads employed in harbour service	13	191	64,541	33,153
Total	69	745	437,222	298,291

SCREW STEAMERS.			SAILING VESSELS.		
	Number.	Guns.		Number.	Guns.
Ships	15	399	Drill, training, and gunnery ships	18	248
Frigates	15	365	Stationary, receiving, and dépôt	12	76
Corvettes	44	592	Brigs	5	42
Sloops	30	162	Sloops	2	12
Gun vessels	49	179	Schooners	6	6
Gunboats	82	210	Coastguard cruisers	22	22
Steam cruisers	3	30	Harbour service	119	—
Steel dispatch boats	2	20	Total	184	406
Torpedo vessels	2	6			
Surveying vessels	2	7			
Troop and store vessels	17	35			
Harbour service (tugs, &c.)	13	2			
Total	274	2,007			

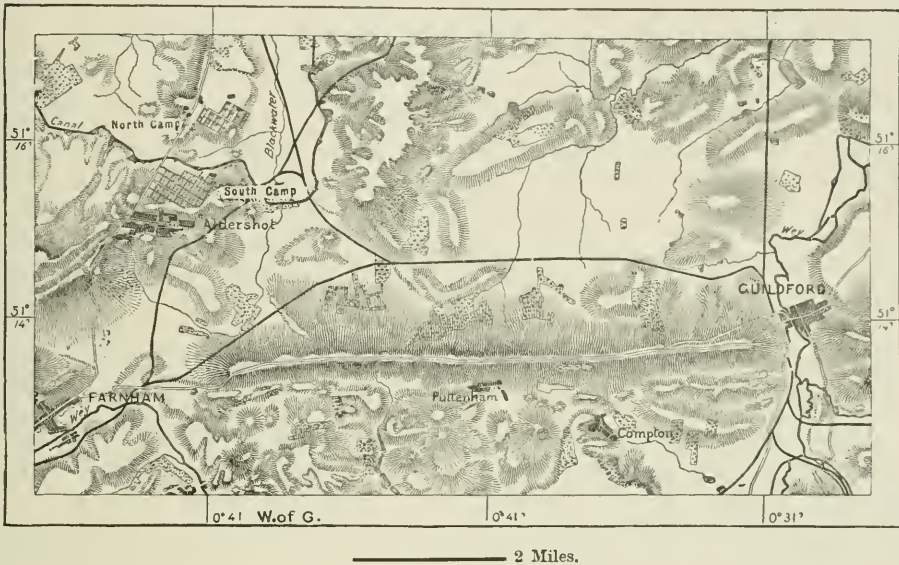
PADDLE STEAMERS.			SUMMARY.		
	Number.	Guns.		Number.	Guns.
Dispatch boats	4	8	Armour-clads	69	745
Yachts	5	5	Screw steamers	274	2,007
Sloops	5	25	Paddle steamers	53	69
Coastguard cruisers	4	4	Sailing vessels	184	406
Other vessels	13	27	Total	580	3,227
Tugs, &c. in harbour service	22	—			
Total	53	69			

And in addition a numerous torpedo flotilla. The most powerful ships of the British navy are the *Inflexible*, *Dreadnought*, *Devastation*, *Thunderer*, *Majestic*, *Colossus*, *Neptune*, *Collingwood*, *Agamemnon*, and *Ajax*.

charge for interest and management of the debt has been reduced £4,000,000 since 1817—partly, of course, by paying off the principal, but more by the reduction of the interest.* This decrease in the charges of the debt, added to the greater productiveness of taxes and duties resulting from increased prosperity of the people, has enabled the Government to reduce taxation, and to introduce

Fig. 236.—BREACHES IN THE NORTH DOWNS AND THE CAMP OF ALDERSHOT.

Scale 1 : 160,000.



financial reforms. To what extent this has been effected may be judged from the fact that while, in 1861, imperial taxation, direct and indirect, amounted to 45s. a head of the population, in 1879-80 it only reached 34s.

Whilst the national taxation has thus undergone a considerable reduction, the local taxation has risen during the same period from about £18,000,000 to £37,000,000, or from 13s. to 22s. per head. Nor must we lose sight of the fact that the imperial budget is closely connected with that of India, which almost regularly results in a deficit. It having been found impossible to raise a revenue in India sufficient to defray the expenses of government, England is perpetually being called upon to pledge her credit to meet the deficiency. The Chancellor of the Exchequer is therefore bound to husband his resources with the greatest care, in order that he may be prepared to meet the dangers

* The National Debt :—

	Principal, funded and unfunded.	Annual Charge for Interest and Management.	Debt, after deducting Balances in Exchequer.
1775 (commencement of American war)	£128,583,635	£4,471,571	—
1793 (commencement of the French wars)	239,350,148	9,208,495	—
1817 (consolidation of English and Irish Exchequers)	840,850,491	32,038,291	—
1838	792,306,442	29,461,528	—
1853 (before Crimean war)	771,335,801	27,804,844	£766,850,571
1856 (termination of Crimean war)	833,857,515	28,191,977	828,256,894
1880	774,044,235	28,111,810	770,770,807

which lurk in the future. His resources are no more inexhaustible than are those of any other state.

It would be bold to hazard a prediction as regards England's position as a great power in the immediate future. Her interests are more complex, and through her numerous colonies she is brought into direct contact with a greater variety of nations, than can be said of any other state in the world, ancient or modern. Not an event or commercial crisis can take place in any part of the world without England being affected by it. No other state organism is equally sensitive to outside impressions, and the fate of Great Britain depends more or less upon the destinies of all those nations with which it entertains commercial relations.

Several amongst the British colonies, such as Canada, New Zealand, and Australia, are financially independent, and give weight to the material and moral influence of the empire of which they are members. Colonies such as these are an accession of strength, and can never become a source of danger. But this is not the case as respects India, where a handful of Englishmen have succeeded in imposing a government upon millions of natives. English forts and settlements dot the southern shores of all Asia, and English politics are thus interwoven with those of Arabs, Persians, Burmans, Malays, and Chinese. And as India affords no natural base of operations, it is absolutely necessary to keep open by sea and land all those routes which connect it with the great natural focus of British power. No other nation disputes the free use of the ocean highway around South Africa, whilst the route through the Mediterranean, the Suez Canal, and the Red Sea is sufficiently protected by the fortifications of Gibraltar, Malta, and Aden. In taking possession of Cyprus and assuming a kind of protectorate over Asia Minor, England keeps her eyes upon those routes which will one day join Constantinople to the Gulf of Persia. But farther north there are other roads, which join the Black Sea and the Caspian to the passes leading through the Hindu-Kush, and by means of these, it is feared, it will be possible to threaten and intercept the routes leading to India. Russia, a great military power, naturally seeks to secure an outlet towards the south, and looks to the acquisition of ports in the Archipelago and on the Gulf of Persia. England's task has been to put up a barrier against Russian encroachments. Will she be sufficiently strong to keep Russia to the north of the huge mountains which stretch from the Balkans to the Himalayas? Upon this depends her future, not indeed as a nation, but as the preponderating power of the Mediterranean and of continental Asia. England boasts that for several generations past the revolutions which have convulsed other countries have stopped short of the narrow strait which separates her from the continent. Whilst the nations of continental Europe and of America have been violently shaken by civil wars and revolutions, England has experienced only gentle waves of transmission. But the future is pregnant with great events, and England, like every other nation, will be called upon to play her part in this new drama of the world's history.



APPENDIX.

STATISTICAL TABLES.

I.—AREA AND POPULATION.

All towns of 2,500 inhabitants are included in this table. Towns lying within two counties are given under the county in which most of the inhabitants reside.

ENGLAND.

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
BEDFORD . . .	462	146,257	149,473	Luton, 23,960; Bedford, 19,533; Leighton Buzzard, 4,696; Dunstable, 4,627; Biggleswade, 4,244.
BERKS. . . .	752	196,475	218,363	Reading, 42,054; Windsor, 12,273; Newbury, 10,144; Maidenhead, 8,220; Abingdon, 5,684; Wantage, 3,295; Wallingford, 2,303; Wokingham, 2,868; Farringdon, 2,738; Hungerford, 2,309.
BUCKINGHAM .	733	175,879	176,323	Aylesbury, 28,907; Chipping Wycombe, 10,618; Great Marlow, 6,778; Slough, 4,509; Buckingham, 3,585; Newport Pagnell, 3,655; Eton, 2,806; Olney, 2,547.
CAMBRIDGE . .	820	186,906	185,594	Cambridge, 35,363; <i>Wisbeach</i> , 9,249; Ely, 8,166; March, 5,854; Whittlesea, 4,297.
CHESTER . . .	1,064	561,201	644,037	Stockport, 59,553; Birkenhead, 84,006; Macclesfield, 37,514; Chester, 36,794; Stalybridge, 22,785; Dukinfield, 14,085; Crewe, 24,385; Wallasey (New Brighton, &c.), 14,819; Hyde, 28,630; Runcorn, 12,443; Congleton, 11,116; Altrincham, 8,478; <i>Bebington</i> , 6,940 (viz. Lower Bebington, 3,768; Higher Bebington, 3,172); Nantwich, 6,673; Sale, 5,573; Sandbach, 5,259; Lymm, 4,541; Witton-cum-Twambrook (near Northwich), 4,229; Bollington, 3,668; Knutsford, 3,597; Bredbury, 3,596; Middlewich, 3,085; Weston and Parkgate, 2,838; Tarporley, 2,652.
CORNWALL . .	1,356	362,343	330,686	Truro, 10,619; Redruth, 10,685; Penzance, 12,409; Camborne, 7,757; St. Ives, 6,445; Falmouth, 5,973; Liskeard, 4,536; Bodmin, 5,061; Phillack, 4,165; St. Austell, 3,803; Helston, 3,432; Penryn, 3,466; Lannceston, 3,217; Ludgvan, 2,960; Madron, 2,927.
CUMBERLAND .	1,516	220,253	250,647	Carlisle, 35,884; Whitehaven, 19,295; Penrith, 8,317; Workington, 7,979; Maryport, 7,443; Cleaton Moor, 5,529; Cockermouth, 7,188; Holmo Cultram, 4,087; Wigton, 3,425; Keswick, 2,777; Brampton, 2,617.
DERBY	988	379,394	461,914	<i>Derby</i> , 81,168; Glossop, 19,574; Chesterfield, 12,221; Ilkeston, 9,662; Belper, 8,527; Ripley, 5,639; Heanor, 4,888; Claycross, 4,802; Matlock, 3,834; Buxton, 3,717; Alfreton, 3,680; Wirksworth, 3,338; Melbourne, 2,502.

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
DEVON . . .	2,586	601,374	603,595	Plymouth, 73,794; Devonport, 48,939; <i>Exeter</i> , 37,665; Torquay, 21,657; Barnstaple, 12,282; Tiverton, 10,462; Tavistock, 6,879; Bideford, 6,512; Teignmouth, 6,751; Woolborough, 6,082; Exmouth, 5,614; Dartmouth, 5,725; Lower Brixham, 4,941; Ilfracombe, 4,721; St. Mary Church, 4,472; Northam, 4,336; Crediton, 4,222; Ottery St. Mary, 4,110; Totnes, 4,089; South Molton, 3,340; Dawlish, 3,622; Paignton, 3,590; Torrington, 3,445; Honiton, 3,358; Sidmouth, 3,360; Topsham, 2,514.
DORSET . . .	980	195,537	191,028	Weymouth with Melcombe Regis, 13,715; Poole, 12,310; Portland Island, 9,907; Bridport, 6,795; Dorchester, 7,567; Sherborne, 5,545; Blandford Forum, 3,373; Lyme Regis, 2,047; Wareham, 6,360; Shaftesbury, 2,312.
DURHAM . . .	1,012	685,089	867,258	Sunderland, 116,542; Gateshead, 65,803; South Shields, 56,875; Stockton, 41,015; Darlington, 35,104; West Hartlepool, 21,110; Jarrow, 25,469; Durham, 14,932; Hartlepool, 12,361; Bishop Auckland, 8,736; Dawdon (Seaham Harbour), 7,132; Felling, 6,244; Consett, 5,961; Southwick, 5,937; Houghton-le-Spring, 5,276; Tow Law, 4,968; Spenny Moor, 4,627; Benfieldside, 4,432; Barnard Castle, 4,306; Leadgate, 3,677; Rydon, 3,251; Bandon-on-Tyne, 2,969.
ESSEX . . .	1,595	466,436	576,434	West Ham, 62,919; Colchester, 28,374; Chelmsford, 9,318; Romford, 6,335; Harwich, 7,842; Halstead, 6,783; Barking, 5,766; Saffron Walden, 6,060; Maldon, 5,468; Waltham Holy Cross, 5,197; Wanstead, 5,119; Braintree, 4,790; Brentwood, 3,737; Witham, 3,347; Coggeshall, 2,916; Southend, 2,508.
GLOUCESTER . .	1,258	534,640	572,433	<i>Bristol</i> , 206,874; <i>Cheltenham</i> , 43,972; Gloucester, 36,521; Cricklade, 51,951; Stroud, 40,587; Tewkesbury, 5,100; Bisley, 4,985; Cirencester, 8,431; Tetbury, 3,349; Westbury-on-Severn, 2,495; Dursley, 2,413; Wotton-under-Edge, 2,314.
HEREFORD . .	833	125,370	121,062	Hereford, 19,821; Leominster, 6,044; Ross, 3,586; Ledbury, 2,967; Kington, 2,126.
HERTFORD . .	630	192,226	203,069	St. Albans, 10,931; Hitchin, 7,630; Cheshunt, 7,518; Watford, 7,461; Hertford, 7,747; Bishop Stortford, 6,250; Hemel Hempstead, 5,996; Ware, 4,917; Berkhamsted, 4,083; Tring, 4,045; Barnet, 3,720.
HUNTINGDON .	359	63,708	59,491	Huntingdon, 4,228; Godmanchester, 2,188; St. Ives, 3,002; St. Neot's, 3,200; Ramsey, 2,378.
KENT	1,570	848,299	977,706	London, part of, 218,179; Chatham, 46,788; Rochester, 21,207; Dover, 30,270; Maidstone, 29,623; <i>Tunbridge Wells</i> , 22,873 (viz. Tunbridge Wells, 19,410; Southborough, 3,463); Gravesend, 23,302; Canterbury, 21,704; Ramsgate, 14,640; Sheerness, 13,956; Folkestone, 18,986; Margate, 16,030; Deal, 8,500; Bromley, 10,674; <i>Sittingbourne</i> , 9,611; (viz. Sittingbourne, 6,148; Milton, 3,463); Ashford, 8,458; Dartford, 8,298; Tunbridge, 8,209; Faversham, 8,616; Whitstable, 5,481; Sevenoaks, 4,118; Tenterden, 3,620; Hythe, 4,173; Wrotham, 3,201; Sandwich, 2,846.
LANCASHIRE . .	1,887	2,819,495	3,454,441	<i>Liverpool</i> , 552,508; <i>Manchester</i> , 341,414; Salford, 176,235; Rusholme, 7,430; Gorton, 21,616; Levensholme, 2,742; Openshaw, 11,108; Moss Side, 5,311; Bradford, 7,168; Newton Heath, 18,103; Crumpsall, 5,342; Bootle-cum-Linacre, 27,374; Oldham, 111,343; Preston, 96,537; Bolton, 105,414; Blackburn, 104,014; Rochdale, 68,866; St. Helen's, 57,403; Burnley, 58,751; Wigan, 48,194; Bury, 52,213; <i>Ashton-under-Lyne</i> , 37,040; Warrington, 41,452; Accrington, 31,435; <i>Southport</i> , 32,206; Over Darwen, 29,744; Heywood, 22,979; <i>Farnworth</i> , 19,380 (viz. Farnworth, 13,550; Kearsley, 5,830);

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
				Eccles, Barton, Winton, and Monton, 18,915; Barrow-in-Furness, 47,100; Lancaster, 20,663; Bacup, 17,199; Chorley, 16,864; Middleton, 14,587; Widnes, 14,357; Swinton and Pendlebury, 14,052; Ince-in-Makerfield, 11,989; Stretford, 11,945; Radcliffe, 11,446; Hindley, 10,627; Oswaldtwistle, 10,283; Mossley, 10,578; Whitefield, 9,054; Halliwell, 8,706; Newton-in-Makerfield, 8,244; Clithero, 10,176; Littleborough, 7,934; Garston, 7,840; Haslingden, 7,698; Ulverston, 7,607; Atherton, 7,531; Colne, 7,375; Prestwich, 6,820; Droylsden, 6,768; Padiham, 6,675; Bedford Leigh, 6,610; Tyldesley with Shackerley, 6,408; Ormskirk, 6,127; Blackpool, 14,229; Prestcot, 5,990; Failsworth, 5,685; West Leigh, 5,590; Nelson, 5,580; Milnrow, 5,505; Pennington, 5,423; Clayton-le-Moors, 5,390; Denton, 5,117; Great Harwood, 4,007; Much Woolton, 4,643; Astley Bridge, 4,559; Church, 4,450; Fleetwood, 4,428; Ramsbottom, 4,204; Leyland, 3,839; Kirkham, 3,593; Lytham, 3,257; Brierfield, 3,115; Fulwood, 3,079; Poulton-le-Sands, 3,005; Lees, 2,919.
LEICESTER . .	800	269,311	321,258	Leicester, 122,376; Loughborough, 11,588; Ashby-de-la-Zouch, 7,302; Hinckley, 6,902; Melton Mowbray, 5,011; Whitwick, 4,277; Market Harborough, 2,362; Castle Donington, 2,154.
LINCOLN . . .	2,762	436,599	469,919	Lincoln, 37,313; Great Grimsby, 28,503; Boston, 14,941; Louth, 10,691; Spalding, 9,111; Stamford, 8,773; Gainsborough, 7,564; Holbeach, 5,332; <i>Grantham</i> , 16,886; Horncastle, 4,865; Barton-upon-Humber, 4,332; Crowle, 3,813; New Sleaford, 3,592; Bourne, 3,098; Alford, 2,881; Market Rasen, 2,815; Long Sutton, 2,727; Crowland, 2,459.
MIDDLESEX . .	283	2,539,765	2,920,485	London, part of, 2,211,671, of whom 74,897 are in the City of London: the entire Metropolis, 3,254,260; Tottenham, 22,869; Enfield, 16,054; Edmonton, 13,860; Hornsey, 11,746; Brentford, 11,091; Twickenham, 10,533; Ealing, 9,959; Hounslow, 2,294; Chiswick, 8,508; Acton, 8,306; South Hornsey, 7,611; Uxbridge, 7,497; Harrow-on-the-Hill, 4,997; Teddington, 4,063; Staines, 3,464; Hampton Wick, 2,207.
MONMOUTH . .	576	195,448	211,267	Newport, 35,313; Abersychan, 14,569; Tredegar, 12,389; Blaenavon, 9,736; Monmouth, 6,111; Pontypool, 4,834; Abergavenny, 4,803; Chepstow, 3,347; Panteague, or Panteg, 2,761; Upper Llanvrechva, 2,552.
NORFOLK . . .	2,119	438,656	444,749	Norwich, 87,842; Great Yarmouth, 46,159; King's Lynn, 18,539; Thetford, 4,032; Diss, 3,851; Swaffham, 3,700; Dereham, 3,687; Wells-next-the-Sea, 3,044; North Walsham, 2,842; Downham Market, 2,752.
NORTHAMPTON .	984	243,891	272,555	Northampton, 51,881; Peterborough, 21,228; Wellingborough, 9,385; Kettering, 7,184; Daventry, 3,859; Oundle, 2,829; Towcester, 2,465; Brackley, 2,154.
NORTHUMBER- LAND . . .	2,016	386,646	434,086	Newcastle-upon-Tyne, 145,359; Tynemouth, 44,118; Bedlingtonshire, 13,494; Berwick-upon-Tweed, 13,998; Walker, 8,888; Cowpen, 6,464; Alnwick and Canongate, 6,218; Morpeth, 4,556; Hexham, 5,331; Wallsend, 4,169; Cramlington, 4,167; Willington Quay, 4,096; South Blyth, 2,918.
NOTTINGHAM .	882	319,758	391,815	<i>Nottingham</i> , 186,575; Basford, 13,038; Newark, 14,018; Mansfield, 11,824; Worksop, 10,409; Sutton-in-Ashfield, 7,574; Lenton, 6,315; Arnold, 4,634; Hucknall Torkard, 4,257; East Retford, 9,748.
OXFORD . . .	738	177,975	179,559	Oxford, 35,264; Banbury, 3,600; Henley, 4,523; Chipping Norton, 4,167; Bicester, 3,018; Witney, 2,976; Woodstock, 7,033; Thame, 2,823.

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
RUTLAND . . .	148	22,073	21,434	Oakham, 2,911; Uppingham, 2,464.
SHROPSHIRE . .	1,291	248,111	248,014	Shrewsbury, 26,478; Coalbrookdale, Ironbridge, Madeley, Broseley (included in Much Wenlock Borough); Oswestry, 7,847; Wellington, 5,926; Bridgenorth, 5,885; Ludlow, 5,035; Market Drayton, 4,039; Whitechurch, 3,696; Newport, 3,202; Shifnal, 2,190; Much Wenlock, 18,442.
SOMERSET . . .	1,640	463,483	469,109	Bath, 51,814; Taunton, 16,614; Bridgwater, 12,007; Weston - super - Mare, 10,470; Frome, 9,377; Yeovil, 8,479; Wellington, 5,119; Wells, 4,634; Shepton-Mallet, 4,363; Clevedon, 4,039; Midsomer Norton, 4,010; Glastonbury, 3,719; Crewkerne, 3,557; Ilminster, 2,431.
SOUTHAMPTON (HAMPSHIRE) .	1,613	544,684	593,470	Portsmouth, 127,989; <i>Southampton</i> , 60,051; Shirley, 5,339; Aldershot, 21,682; Winchester, 17,780; Ryde, 11,461; Newport, 9,357; Gosport, 7,366; Fareham, 7,023; Bournemouth, 5,906; West Cowes, 5,730; Basingstoke, 6,681; Andover, 5,653; Ventnor, 4,841; Lymington, 2,410; Romsey, 4,204; Alton, 4,092; Havant, 2,634; Sandown, 2,320; Christchurch, 28,535; Petersfield, 6,546.
STAFFORD . . .	1,144	858,326	981,013	Wolverhampton, 75,766; Walsall, 58,795; West Bromwich, 47,918; Hanley, 48,361; Tipton, 29,445; Burslem, 26,522; Wednesbury, 12,443; Bilston, 24,188; Rowley Regis, 23,534; <i>Sedgley</i> , 37,355; (<i>viz.</i> Lower Sedgley, 22,900; Upper Sedgley, 14,455); Burton-upon-Trent, 39,288; <i>Longton</i> , 18,620; Smethwick, 17,158; Newcastle-under-Lyme, 17,508; Willenhall, 15,902; Stoke-upon-Trent, 19,261; Stafford, 19,977; Darlaston, 14,416; Tunstall, 13,540; Leek, 11,331; Brierley Hill, 11,046; Fenton, 10,299; Lichfield, 8,349; Quarry Bank, 6,332; Heathtown, 5,268; Harborne, 5,105; Tamworth, 4,891; Kidsgrove, 4,162; Stone, 3,732; Wednesfield, 3,730; Smallthorne, 3,609; Uttoxeter, 3,604; Rugeley, 3,375; Cheadle, 2,920.
SUFFOLK . . .	1,484	348,869	356,893	Ipswich, 50,546; Lowestoft, 15,246; Bury St. Edmunds, 16,111; Sudbury, 6,584; Beccles, 5,721; Newmarket, 4,534; Woodbridge, 4,403; Stowmarket, 4,097; Eye, 6,293; Hadleigh, 3,575; Bungay, 3,503.
SURREY . . .	755	1,091,635	1,436,899	London, part of, 749,522; Croydon, 55,652; Reigate, 18,662; Kingston-on-Thames, 20,648; Richmond, 15,113; Guildford, 10,858; Wimbledon, 9,087; Surbiton, 7,642; Epsom, 6,276; Dorking, 5,418; Farnham, 4,461; Chertsey, 3,146; Godalming, 2,505.
SUSSEX . . .	1,443	417,456	490,505	<i>Brighton</i> , 107,546; <i>Hastings</i> , 42,258; Eastbourne, 10,361; Horsham, 9,552; Chichester, 8,114; Worthing, 7,415; Lewes, 11,199; Rye, 4,224; New Shoreham, 42,559; Battle, 3,495; Littlehampton, 3,272; Arundel, 2,748; Bognor, 2,811; Uckfield, 2,214; Midhurst, 7,221.
WARWICK . . .	885	634,189	737,339	<i>Birmingham</i> , 400,774; Coventry, 42,111; Leamington, 22,979; Warwick, 11,800; Rugby, 8,385; Nuneaton, 7,399; Stratford-on-Avon, 8,054; Atherstone, 3,667; Bedworth, 3,405; Kenilworth, 3,335; Chilvers Coton, 2,658.
WESTMORELAND	783	65,010	64,191	Kendal, 13,696; Appleby, 1,989.
WILTSHIRE . .	1,352	257,177	258,965	Salisbury, 14,792; Trowbridge, 11,508; <i>Swindon</i> , 11,720 (<i>viz.</i> New Town, 7,628; Old Town, 4,092); Devizes, 6,645; Westbury, 6,014; Warminster, 5,786; Bradford-on-Avon, 4,871; Chippenham, 1,352; Marlborough, 3,343; Calne, 2,474; Malmesbury, 6,881; Wilton, 8,802.
WORCESTER . .	738	338,837	380,283	Dudley, 46,252; Worcester, 33,956; Kidderminster, 24,270; Oldbury, 16,410; Balsall (suburb of Birmingham), 13,615; Stourbridge, 9,376; Bromsgrove, 6,967; Redditch, 6,135; Great Malvern, 5,693; Evesham, 5,112; Droitwich, 3,761; Stourport (Lower Milton), 3,081; Bewdley, 3,088; Halesowen, 2,984; Pershore, 2,826.

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
YORKSHIRE (East Riding) . . .	1,173	268,466	315,460	Kingston-upon-Hull, 154,240; Beverley, 11,425; Bridlington, 6,203; Great Driffield, 5,067; Cottingham, 4,010; Pocklington, 2,622.
YORKSHIRE (North Riding)	2,128	293,278	346,260	Middlesborough, 55,934; Scarborough, 30,504; Whitby, 14,621; South Stockton, 6,764; Guisborough, 5,202; Malton, 8,754; Richmond, 4,502; Ormesby, 4,080; Pickering, 3,689; Normanby, 3,556; Thirsk, 6,312; Northallerton, 5,445; Hinderwell, 2,579; Skelton-in-Cleveland, 2,561.
YORKSHIRE (West Riding & City)	2,766	1,874,611	2,224,844	Leeds, 309,119; Sheffield, 284,508; Bradford, 183,032; Huddersfield, 81,841; Halifax, 73,630; York, 49,530; Wakefield, 30,854; Rotherham, 34,782; Dewsbury, 29,637; Barnsley, 29,790; Batley, 27,505; Keighley, 19,775; Doncaster, 21,139; North Bierley, 14,433; Todmorden, 11,998; Shipley, 11,757; Morley, 9,607; Ossett-with-Gawthorpe, 9,190; Bingley, 9,062; Heckmond-wike, 8,300; Goole, 7,680; Ovenden, 7,371; Sowerby Bridge, 7,041; Rawmarsh, 6,869; Harrogate, 6,843; Ripon, 7,390; Cleckheaton, 6,583; Elland, 6,432; Brighouse, 6,370; Castleford, 6,268; Idle, 6,253; Selby, 6,193; Sowerby, 6,079; Birstall, 6,044; Skipton, 6,042; Golcar, 6,033; Queensbury, 6,012; Rastrick, 5,896; Otley, 5,855; Windhill, 5,783; Oakworth, 5,683; Thornton, 5,674; Eccleshill, 5,622; Pontefract, 8,798; Thornhill, 5,285; Yeadon, 5,246; Knaresborough, 5,000; Darton, 5,197; Linthwaite, 5,047; Wombwell, 5,009; Nether Soothill, 4,927; Honley, 4,906; Baildon, 4,784; Wooldale, 4,454; Drighlington, 4,338; Mexborough, 4,316; Meltham, 4,229; Greetland, 4,114; Clayton, 4,074; Longwood, 4,055; Knottingley, 4,039; Horbury, 3,977; Hebden Bridge, 3,894; Farsley, 3,829; Tong Street, 3,740; Northowram, 3,725; Upper Soot-hill, 3,469; Denholme Gate, 3,469; Kirkburton, 3,442; Quickmere, 3,358; Whitwood, 3,342; Warley, 3,341; Soyland, 3,264; Calverley, 3,195; Guiseley, 3,185; Wilsden, 3,127; Shelf, 3,091; Southowram, 3,091; Midgley, 3,065; Luddendon Foot, 2,968; Skelmanthorpe, 2,953; Ravensthorpe, 2,910; Allerton, 2,906; Haworth, 2,884; Birken-shaw, 2,833; Slaithwaite, 2,781; Dodworth, 2,747; Silsden, 2,714; Kirkheaton, 2,646; Thurlstone, 2,639; Thorne, 2,618; Ilkley, 2,511; Tad-caster, 2,443.

WALES.

ANGLESEY . . .	302	51,040	51,416	Holyhead, 5,916; Amlwch, 2,968; Beaumaris, 2,239.
BRECKNOCK . . .	719	59,901	57,746	Brecknock, 6,247; Byrnawr, 5,739; Hay, 1,777.
CARDIGAN . . .	693	73,441	70,270	Aberystwith, 7,088; Cardigan, 3,669.
CARMARTHEN . . .	947	115,710	124,846	Llanelly, 14,973; Carmarthen, 10,514; Llandovery, 2,035.
CARNARVON . . .	577	106,121	119,349	Carnarvon, 10,258; Bangor, 7,722; Bethesda, 6,297; Ynyscynhaiarn (Tremadoc and Portmadoc), 4,367; Pwllheli, 3,242; Llandudno, 2,762; Conway, 3,254.
DENBIGH . . .	662	105,102	111,740	Ruabon, 15,150; Wrexham, 10,978; Denbigh, 6,535; Ruthin, 3,033; Llangollen, 2,798.
FLINT	264	76,312	80,587	Flint, 5,096; Rhyl, 4,229; Mold, 3,978; Holywell, 3,540; St. Asaph, 1,900.
GLAMORGAN . . .	810	397,859	511,433	Swansea, 65,597; Merthyr Tydvil, 91,373; Cardiff, 82,761; Aberdare, 36,112; Aberavon, 4,859; Neath, 10,409; Roath, 7,991; Mountain Ash, 7,457; Canton, 7,061; Cwmdn, 5,836; Briton Ferry, 4,803; Bridgend, 3,539; Llantrisant, 2,039.

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
MERIONETH . .	602	46,598	52,038	Towyn, 3,307; Dolgelly, 2,357.
MONTGOMERY .	758	67,623	65,718	Welshpool, 7,107; Newtown and Llanllwchaiarn, 4,874; Llanidloes, 3,421; Machynlleth, 2,042.
PEMBROKE . .	615	91,998	91,824	Pembroke, 14,156; Haverfordwest, 6,398; Tenby, 4,750; Milford, 3,252.
RADNOR . . .	432	25,430	23,528	New Radnor, 6,705; Presteigne, 1,910.
Total (England and Wales) .	58,225	22,723,266	25,974,439	

SCOTLAND.

ABERDEEN . .	1,972	244,603	267,990	Aberdeen, 105,190; Peterhead, 10,953; Fraserburgh, 6,583; Inverurie, 3,048; Huntley, 3,519; New Pitsligo, 2,056; Turriff, 2,304.
ARGYLL . . .	3,335	75,679	76,468	Campbeltown, 7,693; Dunoon, 4,692; Oban, 4,046.
AYR	1,149	200,809	217,519	Kilmarnock, 25,844; Ayr, 20,987; Ardrossan, 4,036; Beith, 4,037; Catrine, 2,638; Cumnock, 3,345; Dalry, 5,010; Galston, 4,085; Girvan, 4,505; Hurlford, 4,385; Irvine, 8,517; Kilbirnie, 3,405; Kilwinning, 3,469; Largs, 3,079; Maybole, 4,474; Newmilns, 2,860; Saltcoats, 5,096; Stevenston, 3,556; Stewarton, 3,130; Troon, 2,383.
BANFF	647	62,023	62,736	Banff, 7,871; Buckie, 4,176; Keith, 4,339.
BERWICK . . .	464	36,486	35,392	Eyemouth, 2,825; Dunse, 2,437.
BUTE	225	16,977	17,657	Rothsay, 8,329.
CAITHNESS . .	700	39,992	38,865	Wick, 8,053; Thurso, 4,055.
CLACKMANNAN .	50	23,747	25,680	Alloa, 10,600; Tillicoultry, 3,732; Dollar, 2,014.
DUMBARTON . .	270	58,857	75,333	Dumbarton, 14,172; Kirkintilloch, 7,456; Helensburgh, 7,693; Alexandria, 6,173; Renton, 4,319; Bonhill, 2,940.
DUMFRIES . . .	1,103	74,808	76,140	Dumfries, 12,629; Langholm, 4,209; Annan, 3,366.
EDINBURGH . .	367	328,379	389,164	Edinburgh, 235,902; Leith, 59,485; Musselburgh, 7,880; Dalkeith, 6,931; Portobello, 10,673.
ELGIN	488	43,612	43,788	Elgin, 7,533; Forres, 4,030; Lossiemouth, 3,497.
FIFE	513	106,735	171,931	Kirkcaldy, 23,315; Dunfermline, 17,084; St. Andrews, 6,458; Anstruther, 4,702; Burntisland, 4,271; Cupar, 5,010; Dysart, 2,659; Ferryport-on-Craig, 2,630; Leslie, 3,768; Leven, 2,501; Newburgh, 2,777.
FORFAR	890	237,567	266,360	Dundee, 140,230; Arbroath, 21,785; Brechin, 9,031; Broughty Ferry, 7,923; Carnoustie, 3,221; Forfar, 12,817; Kirriemuir, 4,390; Montrose, 14,994.
HADDINGTON . .	280	37,771	38,502	Dunbar, 3,661; Haddington, 4,043; Tranent, 2,235.
INVERNESS . .	4,324	87,531	90,454	Inverness, 17,385.
KINCARDINE . .	388	34,630	34,464	Stonehaven, 4,957.
KINROSS . . .	78	7,198	6,697	Kinross, 1,960.
KIRKCUDBRIGHT	954	41,859	42,127	Castle Douglas, 2,565; Dalbeattie, 3,865; Kirkcudbright, 2,571.
LANARK	889	765,339	904,412	Glasgow, 617,161; Airdrie, 16,335; Coatbridge, 17,500; Motherwell, 12,904; Baillieston, 2,927; Carlisle, 3,867; Hamilton, 18,517; Lanark, 4,910; Larkhall, 6,503; Newmains, 2,682; Rutherglen, 11,265; Stonehouse, 2,615; Strathaven, 3,812; Tolleross, 3,533; Wishaw, 13,112.
LINLITHGOW . .	127	40,695	43,510	Borrowstouness, 5,284; Linlithgow, 3,913; Bathgate, 4,887; Airdale, 2,642; Crofthead, 3,000.
NAIRN	200	10,225	10,455	Nairn, 4,156.
ORKNEY	390	31,274	32,044	Kirkwall, 3,947.
PEEBLES	356	12,330	13,822	Peebles, 3,495.
PERTH	2,601	127,768	129,007	Perth, 28,980; Blairgowrie, 4,537; Alyth, 2,377; Auchtermoidy, 2,666; Crieff, 4,469.
RENFREW . . .	254	216,947	263,374	Greenock, 66,704; Paisley, 55,638; Barhead, 7,495; Gourock, 3,336; Johnstone, 9,267; Kilbarchan, 2,548; Pollockshaws, 9,363; Port Glasgow, 13,294; Renfrew, 4,855.
ROSS AND CROMARTY . . .	3,247	80,955	78,547	Stornoway, 2,693; Dingwall, 1,932.
ROXBURGH . . .	670	53,974	53,442	Hawick, 11,336; Kelso, 4,687; Jedburgh, 3,402.
SELKIRK	260	14,005	25,564	Galashiels, 9,040; Selkirk, 6,090.
SHETLAND . . .	550	31,608	29,705	Lerwick, 4,045.

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population		Towns (1881).
		1871.	1881.	
STIRLING . . .	467	98,218	112,443	Stirling, 16,012; Alva, 4,961; Bannockburn, 2,549; Bridge of Allan, 3,005; Denny, 4,080; Falkirk, 15,599; Grangemouth, 4,560; Kilsyth, 5,405; Lennoxton, 3,249.
SUTHERLAND . .	2,126	24,317	23,370	Golspie, 956.
WIGTOWN . . .	512	38,830	38,611	Newton Stewart, 2,645; Stranraer, 6,415; Wigtown, 1,725.
Total (Scotland)	30,836	3,360,018	3,735,573	

IRELAND.

LEINSTER.

CARLOW . . .	346	51,650	46,568	Carlow, 7,185; Bagnalstown, 2,141; Tullow, 2,050.
DUBLIN . . .	354	405,262	418,910	Dublin, 249,602 (Parliamentary Borough, 271,150); Balbriggan, 2,443; Blackrock, 8,902; Clontarf, 4,210; Dalkey, 3,234; New Kilmainham, 5,391; Rathmines and Rathgar, 24,370; Skerries, 2,227; Pembroke, 23,222.
KILDARE . . .	654	83,614	75,804	Athy, 4,181; Newbridge, 3,372; Naas, 3,808.
KILKENNY . . .	797	109,379	99,531	Kilkenny, 12,299; Callan, 2,340.
KING'S . . .	772	75,900	72,852	Tullamore, 5,098; Parsonstown, 4,955.
LONGFORD . . .	421	64,501	61,009	Longford, 4,380.
LOUTH . . .	318	84,021	77,684	Drogheda, 12,297; Dundalk, 11,913; Ardee, 2,622.
MEATH . . .	904	95,558	87,469	Kells, 2,822; Trim, 2,010.
QUEEN'S . . .	664	79,771	73,124	Mountmellick, 3,126; Maryborough, 2,872; Portarlington, 2,357.
WESTMEATH . .	709	78,432	71,798	Mullingar, 4,787.
WEXFORD . . .	901	132,666	123,854	Wexford, 12,163; New Ross, 6,670; Enniscorthy, 5,666; Gorey, 2,450.
WICKLOW . . .	780	78,697	70,386	Arklow, 4,777; Wicklow, 3,391; Bray, 6,535.
Total . . .	7,619	1,339,451	1,278,989	

MUNSTER.

CLARE . . .	1,294	147,864	141,457	Ennis, 6,307; Kilrush, 3,805.
CORK . . .	2,890	517,076	495,607	Cork, 80,124; (Parliamentary Borough, 103,650); Queenstown, 9,755; Fermoy, 6,454; Kinsale, 5,386; Bandon, 3,997; Youghal, 5,396; Mallow, 4,439; Middleton, 3,358; Clonakilty, 3,676; Skibbereen, 3,631; Macroom, 3,099; Mitchelstown, 2,467; Charleville, 2,266; Bantry, 2,632; Passage West, 2,440; Dunmanway, 2,049.
KERRY . . .	1,853	196,586	201,039	Tralee, 9,910; Killarney, 6,651; Listowel, 2,965.
LIMERICK . . .	1,064	191,936	180,632	Limerick, 38,562; (Parliamentary Borough, 48,670); Rathkeale, 2,549; Newcastles, 2,186.
TIPPERARY . . .	1,659	216,713	199,612	Carrick-on-Suir, 6,583; Clonmel, 9,325; Nenagh, 5,422; Tipperary, 7,274; Thurles, 4,850; Cashel, 3,961; Templemore, 2,800; Caher, 2,469; Roscrea, 2,801.
WATERFORD . .	724	123,310	112,768	Waterford, 22,457 (Parliamentary Borough, 28,860); Dungarvan, 6,306; Tramore, 2,036; Lismore, 1,860.
Total . . .	9,481	1,393,485	1,331,115	

CONNAUGHT.

GALWAY . . .	2,448	248,458	242,005	Galway, 15,471 (Parliamentary Borough, 19,180); Ballinasloe, 4,772; Loughrea, 3,159; Tuam, 3,567.
LEITRIM . . .	613	95,562	90,372	Carrick-on-Shannon, 1,420.
MAYO . . .	2,131	246,030	245,212	Ballina, 5,760; Castlebar, 3,855; Westport, 4,469; Ballinrobe, 4,772.
ROSCOMMON . .	950	140,670	132,490	Athlone, 6,755; Boyle, 2,994; Roscommon, 2,117.
SLIGO . . .	721	115,493	111,578	Sligo, 10,808.
Total . . .	6,863	846,213	821,657	

AREA AND POPULATION (*continued*).

Counties.	Area. Sq. Miles.	Population.		Towns (1881).
		1871.	1881.	
<i>ULSTER.</i>				
ANTRIM . . .	1,193	420,170	421,943	Belfast, 208,122; Ballymena, 8,883; Lisburn, 10,755; Carrickfergus, 10,009; Larne, 4,716; Legoneil, 3,497; Ballymoney, 3,049; Antrim, 1,647.
ARMAGH . . .	513	179,260	163,177	Lurgan, 10,135; Armagh, 10,070; Portadown, 7,850.
CAVAN . . .	746	140,735	129,476	Cavan, 3,050; Belturbet, 1,807.
DONEGAL . . .	1,870	218,334	206,035	Ballyshannon, 2,840; Letterkenny, 2,188.
DOWN . . .	954	277,294	272,107	Newry, 14,808; Newtownards 8,676; Banbridge, 5,609; Donaghadee, 2,370; Downpatrick, 3,419; Holywood, 3,293; Gilford, 1,324; Bangor, 3,006; Dromore, 2,491.
FERMANAGH . .	714	92,794	84,879	Enniskillen, 5,712.
LONDONDERRY .	818	173,906	164,991	Londonderry, 29,162; Coleraine, 5,899; Newtown, Limavady, 2,954.
MONAGHAN . .	500	114,969	102,748	Monaghan 3,369; Clones, 2,216; Carrickmacross, 2,002; Castleblayney, 1,810.
TYRONE . . .	1,260	215,766	197,719	Strabane, 4,196; Omagh, 4,126; Dungannon, 4,084; Cookstown, 3,870.
Total . .	8,568	1,833,228	1,743,075	
IRELAND . . .	32,531	5,412,377	5,174,836	
<i>UNITED KING- DOM . . .</i>				
ISLE OF MAN .	227	54,042	53,558	Douglas, 13,972; Ramsey, 3,934; Peel, 3,513; Castletown, 2,320.
CHANNEL ISLANDS	76	90,596	87,702	St. Helier, 16,715; St. Peter Port, 16,166.

II.—AGRICULTURAL STATISTICS OF THE BRITISH ISLES.

The Totals include the Isle of Man and the Channel Islands.

Description.		1875.	1878.	1880.	1884.
		Acres.	Acres.	Acres.	Acres.
Corn Crops	England	7,528,543	7,274,811	6,993,699	6,645,139
	Wales	512,178	491,868	478,116	463,651
	Scotland	1,410,929	1,400,967	1,403,887	1,375,940
	Ireland	1,916,808	1,831,521	1,766,424	1,599,629
	Total	11,399,030	11,030,280	10,672,086	10,113,264
Wheat	England	3,128,547	3,041,241	2,745,733	2,530,711
	Wales	111,797	101,813	89,729	77,611
	Scotland	102,137	75,363	73,976	66,716
	Ireland	158,995	154,041	148,635	69,009
	Total	3,514,088	3,381,731	3,065,895	2,750,588
Oats	England	1,421,951	1,430,376	1,520,125	1,620,264
	Wales	237,170	234,986	239,526	249,204
	Scotland	1,004,888	1,033,545	1,037,254	1,045,895
	Ireland	1,501,867	1,412,846	1,381,943	1,347,395
	Total	4,176,177	4,124,238	4,191,716	4,276,866
Green Crops (including Potatoes)	England	2,848,473	2,680,983	2,959,134	2,687,504
	Wales	131,085	122,708	120,073	125,382
	Scotland	684,549	687,319	697,446	674,817
	Ireland	1,370,155	1,317,863	1,247,359	1,221,413
	Total	5,057,029	4,832,293	4,746,293	4,733,860
Potatoes	England	320,477	301,852	324,931	360,025
	Wales	44,505	40,816	38,940	41,176
	Scotland	157,671	165,763	187,061	163,847
	Ireland	900,587	846,712	820,728	798,942
	Total	1,431,879	1,369,092	1,380,578	1,373,835

AGRICULTURAL STATISTICS OF THE BRITISH ISLES (*continued*).

Description.		1875.	1878.	1880.	1884.
		Acres.	Acres.	Acres.	Acres.
Clover, Sainfoin, and Grasses under rotation	{ England	2,608,106	2,785,097	2,646,241	2,544,805
	{ Wales	360,596	356,486	332,353	310,157
	{ Scotland	1,385,369	1,431,524	1,455,745	1,526,442
	{ Ireland	1,944,676	1,942,716	1,909,907	1,962,730
	Total	6,337,953	6,557,748	6,389,225	6,392,402
Permanent Pasture, or Grass not broken up in rotation	{ England	10,536,283	11,009,580	11,461,856	12,197,566
	{ Wales	1,666,313	1,748,201	1,805,750	1,886,235
	{ Scotland	1,110,025	1,153,515	1,159,353	1,207,019
	{ Ireland	10,409,329	10,116,191	10,261,266	10,346,308
	Total	23,772,602	24,056,840	24,717,092	25,667,206
Flax.	{ Great Britain	6,751	7,261	8,985	2,247
	{ Ireland	101,174	111,817	157,534	89,197
	Total	107,999	119,085	166,521	91,444
Hops	{ Cultivated only in England	69,172	71,789	66,705	69,258
	{ Great Britain	557,979	632,423	812,566	749,699
	{ Ireland	10,864	16,943	15,366	23,560
	Total	570,005	650,210	828,778	842,517
Bare Fallow or uncropped Arable Land	{ Great Britain only . .	154,584	165,415	179,596	194,723
	{ England	38,957	37,273	44,490	52,975
	{ Wales	12,042	12,251	11,957	12,502
	{ Scotland	2,187,078	2,187,078	1,435,434	1,466,038
	{ Ireland	318,665	328,687	330,000	332,000
Orchards	{ England	2,505,743	2,515,765	2,740,000	2,790,000
	{ Wales	24,112,309	24,417,815	24,596,266	24,844,490
	{ Scotland	2,696,143	2,746,511	2,767,516	2,809,558
	{ Ireland	4,607,898	4,690,206	4,738,127	4,811,813
	Total	15,753,000	15,337,051	15,357,856	15,242,837
Cultivated Area (Crops, Bare Fallow, and Grass)	{ England	47,313,789	47,318,245	47,586,700	47,840,977
	{ Wales	24,112,309	24,417,815	24,596,266	24,844,490
	{ Scotland	2,696,143	2,746,511	2,767,516	2,809,558
	{ Ireland	4,607,898	4,690,206	4,738,127	4,811,813
	Total	15,753,000	15,337,051	15,357,856	15,242,837

LIVE STOCK.

		Number.	Number.	Number.	Number.
Horses (kept for agricultural purposes, or for breeding)	{ Great Britain	1,341,290	1,412,402	1,421,180	990,490
	{ Ireland	469,996	504,750	499,284	480,846
	Total	1,819,687	1,927,066	1,929,680	1,471,336
Horses, others (estimated)	{ Total	971,200	972,000	980,000	423,887
	{ England	4,218,470	4,034,553	4,158,046	4,451,658
	{ Wales	651,274	608,189	654,714	680,879
	{ Scotland	1,143,080	1,095,387	1,099,286	1,136,604
	{ Ireland	4,115,288	3,985,120	3,921,026	4,112,267
Cattle	{ Total	10,162,787	9,761,657	9,871,153	10,422,762
	{ England	19,114,634	18,444,004	16,828,646	16,426,064
	{ Wales	2,951,810	2,925,806	2,718,316	2,656,997
	{ Scotland	7,100,994	7,036,396	7,072,088	6,983,293
	{ Ireland	4,254,027	4,095,134	3,561,361	3,243,572
Sheep	{ Total	33,491,948	32,571,922	30,239,620	29,376,787
	{ England	1,875,357	2,124,722	1,697,914	2,207,444
	{ Wales	203,348	218,337	182,003	217,387
	{ Scotland	151,213	140,189	120,925	159,560
	{ Ireland	1,252,056	1,269,399	849,046	1,306,195
Pigs (exclusive of those kept in towns and by cottagers)	{ Total	3,495,167	3,768,019	2,863,483	3,906,205
	{ England	1,875,357	2,124,722	1,697,914	2,207,444
	{ Wales	203,348	218,337	182,003	217,387
	{ Scotland	151,213	140,189	120,925	159,560
	{ Ireland	1,252,056	1,269,399	849,046	1,306,195

III.—IMPORTS OF MERCHANDISE INTO THE UNITED KINGDOM CLASSIFIED.

		Quantities.		Value in £.	
		1879.	1883.	1879.	1883.
Food :—					
Corn and Flour	cwts.	136,743,743	150,763,140	61,261,437	67,622,367
Rice	"	6,857,330	7,747,725	3,480,351	3,175,426
Potatoes	"	9,357,179	5,149,509	2,696,885	1,595,260
Cattle and Calves	No.	247,768	474,750	4,639,431	9,332,242
Sheep and Lambs	"	944,888	1,116,115	2,252,824	2,518,382
Beef	cwts.	812,237	289,214	1,937,428	633,456
Meat, salted or fresh	"	153,284	804,794	440,726	2,260,941
" preserved	"	567,877	610,400	1,690,099	1,753,842
Pork	"	441,209	376,899	691,362	761,871
Bacon and Hams	"	4,917,631	3,695,992	8,880,223	10,036,326
Butter	"	2,045,399	2,334,473	10,379,451	11,773,933
Cheese	"	1,789,721	1,799,704	3,824,017	4,890,400
Lard	"	840,819	853,541	1,420,881	2,247,016
Fish	"	1,160,140	1,295,754	1,652,957	2,307,966
Eggs	No.	766,707,840	950,000,000	2,295,720	2,732,055
Sugar and Molasses	cwts.	21,514,436	20,770,031	22,344,555	20,831,042
Spices	lbs.	36,873,775	55,720,484	927,889	1,536,702
Currants and Raisins	cwts.	1,734,050	1,614,893	2,481,056	2,480,996
Oranges and Lemons	bshls.	3,433,059	4,477,043	1,317,961	1,704,826
Olive Oil	tuns	26,198	31,053	1,179,021	1,198,935
Oil-seed Cake	tons	217,184	10,524	1,631,277	366,489
Seed, Clover and Grass	cwts.	344,795	248,531	755,333	1,839,510
Yeast, dried	"	194,726	260,904	508,158	730,823
DRINKS AND STIMULANTS :—					
Tea	lbs.	184,076,472	222,262,431	11,262,593	11,542,931
Coffee	cwts.	1,609,386	1,405,134	7,089,100	4,936,465
Cocoa	lbs.	26,155,788	995,934	1,089,417	82,563
Wine	galls.	15,162,857	15,559,795	5,365,250	5,451,933
Spirits (proof)	"	13,546,877	9,836,937	3,000,737	1,914,568
Hops	cwts.	262,765	129,905	1,217,938	1,089,246
Tobacco	lbs.	42,452,778	59,596,373	1,968,652	2,860,827
RAW MATERIALS (principally used in manu- factures) :—					
Cotton, raw	cwts.	13,119,272	15,485,121	36,180,548	45,042,296
Flax and Hemp	"	2,943,728	2,999,035	5,312,597	5,267,589
Jute	"	4,759,363	7,385,028	3,257,497	4,528,429
Silk, raw and thrown	lbs.	4,003,163	3,471,026	3,504,380	2,879,044
" knubs, husks, and waste	cwts.	38,268	62,064	479,399	899,783
Wool	lbs	417,110,099	494,428,802	23,564,064	24,865,638
Goat's Hair or Wool	"	10,072,700	13,634,822	743,615	1,051,982
Hides, tanned and untanned	cwts.	1,326,168	1,196,849	5,126,257	3,802,862
Skins	No.	20,491,288	14,532,179	2,834,795	2,865,134
Indigo and other principal dyeing and tanning stuffs	cwts.	2,101,778	1,861,079	3,487,887	4,082,569
Rags and other paper-making materials	tons	207,706	317,092	1,560,520	2,345,654
Seeds, Flax and Linseed	qrs.	1,651,083	2,323,397	4,095,132	4,786,903
" Rape	"	361,474	767,127	761,670	1,652,714
" Cotton	tons	179,166	248,531	1,449,541	1,839,510
Oil, Fish	tuns	20,196	17,156	589,304	604,746
" Palm	cwts.	881,329	749,422	1,344,788	315,559
" Seed	tuns	15,865	10,524	508,975	1,366,489
Petroleum	galls.	43,280,291	70,526,996	1,382,534	2,170,298
Caoutchouc	cwts.	150,601	229,101	1,626,290	3,652,817
Gutta-percha	"	51,416	63,800	419,417	476,881
Tallow and Stearine	"	1,174,907	1,038,277	2,106,927	2,101,617
Guano	tons	77,015	74,221	704,448	724,608
Copper, Ore and Regulus	"	133,976	163,781	2,260,834	2,936,208
Silver Ore	"	—	—	724,515	1,030,542
Pyrites of Iron or Copper	"	481,392	601,288	1,050,545	1,356,083
Saltpetre and Cubic Nitre	cwts.	1,417,522	2,337,472	1,070,803	1,456,793
Drugs, un-numerated	"	—	—	691,140	1,123,874
Wood and Timber	loads	4,725,289	6,609,942	10,750,502	17,742,660
" "	tons	45,154	112,944		

IMPORTS OF MERCHANDISE INTO THE UNITED KINGDOM CLASSIFIED (*continued*).

	Quantities.		Value in £.	
	1879.	1883.	1879.	1883.
MANUFACTURES:—				
Silk manufactures	—	—	12,841,918	11,554,462
Woollen „	—	—	5,637,675	6,251,281
„ Yarns lbs.	10,909,372	15,533,441	1,401,121	2,004,231
Cotton manufactures	—	—	2,286,599	2,340,064
Iron and Steel in bars tons	95,549	122,895	878,357	1,236,735
„ wrought or manufactured cwt.	2,246,387	3,880,076	1,721,701	2,870,813
Copper, unwrought or part wrought tons	994,960	38,097	2,924,719	2,413,796
Tin cwt.	335,266	521,048	1,143,965	2,442,959
Lead, pig and sheet tons	102,089	102,089	1,531,038	1,305,388
Zinc cwt.	987,485	309,425	910,055	408,206
Glass „	1,147,621	1,377,932	1,574,179	1,605,892
Paper, writing or printing „	238,088	1,160,104	445,271	1,245,861
Leather Gloves dozen pairs.	12,752,964	1,666,298	1,286,030	1,939,487
Artificial Flowers	—	—	471,145	452,824
Clocks No.	829,916	720,321	543,441	468,664
Watches „	—	419,368	458,588	511,188
Chemical manufactures and products	—	—	889,838	1,549,929
Total	—	—	362,991,875	426,891,579
In addition, Merchandise for transhipment	—	—	10,975,669	11,689,318
Bullion imported	—	—	24,155,538	17,223,802

IV.—EXPORTS OF BRITISH PRODUCE CLASSIFIED.

	Quantities.		Value in £.	
	1879.	1883.	1879.	1883.
Food:—				
Corn and Flour cwt.	762,128	131,794	700,495	83,074
Butter „	36,677	30,404	235,500	212,214
Fish of all sorts	—	—	1,417,256	1,882,098
Sugar, refined cwt.	896,243	1,155,787	971,080	1,236,682
Salt tons	959,644	1,004,313	551,949	645,009
Provisions, not otherwise described	—	—	921,985	588,134
DRINKS AND STIMULANTS:—				
Beer and Ale brrls.	412,392	456,109	1,755,331	1,820,259
Spirits, British galls.	1,692,495	2,732,856	452,412	809,644
RAW MATERIALS:—				
Coals, Cinder, Fuel tons	16,442,296	22,775,634	7,206,799	10,645,919
Wool lbs.	15,703,900	19,443,100	941,278	1,029,999
Oil, Seed galls.	12,605,800	20,154,700	1,388,630	1,863,520
MANUFACTURES:—				
Cotton, yarn lbs.	235,635,500	264,772,000	12,106,961	13,509,732
„ manufactures yds.	3,724,648,800*	4,538,888,500	51,867,092	55,534,566
Wool and Worsted, yarn lbs.	33,378,500	33,488,500	3,714,230	3,266,488
„ manufactures yds.	251,254,700*	255,905,700	15,861,166	18,315,557
Linen and Jute, yarn lbs.	31,000,900	38,855,000	1,276,079	1,326,787
„ manufactures yds.	324,365,200*	389,512,100	7,436,280	7,941,159
Silk, thrown, twist, and yarn	—	—	694,735	705,825
„ manufactures yds.	4,724,010	7,687,992	1,697,209	1,254,603
Haberdashery and Millinery	—	—	3,486,920	3,879,768
Apparel and Slops	—	—	3,208,941	3,633,804
Hats of all sorts doz.	779,493	1,057,826	897,657	1,137,085
Leather, and manufactures of	—	—	3,566,054	4,031,931
Bags, empty doz.	5,039,415	4,408,287	1,437,815	1,137,682
Iron and Steel tons	2,883,484	4,043,308	19,417,363	28,590,216
Telegraph Wire	—	—	2,500,637	1,237,823
Machinery	—	—	7,279,205	13,433,081
Hardware and Cutlery	—	—	3,028,271	3,756,449
Copper and Copper ware cwt.	973,524	1,055,018	3,082,479	3,576,473
Lead tons	36,776	39,315	566,966	553,144

* Piece goods only. The value includes goods of every description.

EXPORTS OF BRITISH PRODUCE CLASSIFIED (*continued*).

		Quantities.		Value in £.	
		1879.	1883.	1879.	1883.
Tin	cwts.	124,474	107,437	418,353	524,049
Earthen and China ware		—	—	1,799,956	2,333,167
Glass		—	—	793,033	1,084,374
Paper, writing and printing	cwts.	377,687	597,923	915,925	1,284,862
Stationery		—	—	665,995	882,793
Books, printed	cwts.	95,439	123,025	956,616	1,174,929
Alkali	„	6,337,611	6,947,000	2,010,027	2,124,962
Painters' Colours		—	—	1,030,914	1,277,913
Chemical products		—	—	2,037,148	1,369,778
Total		—	—	191,531,758	239,799,473
In addition, Foreign Merchandise trans- shipped		—	—	10,975,669	11,689,318
Bullion exported		—	—	28,584,912	16,414,211

V.—IMPORTS AND EXPORTS ACCORDING TO COUNTRIES.

Foreign Countries and British Possessions.	1879. Imports.	1883. Imports.	1879. Exports of British, Foreign, and Colonial Produce.	1883. Exports of British, Foreign, and Colonial Produce.	1879. Exports of British Pro- duce only.	1883. Exports of British Pro- duce only.
	£	£	£	£	£	£
<i>Europe.</i>						
Heligoland	—	—	66	4	60	—
Channel Islands (British)	737,793	39,211	813,166	764,394	598,835	562,868
Gibraltar (British)	35,969	151,578	739,665	800,799	677,687	724,625
Malta (British)	184,891	241,509	954,054	1,159,264	768,558	988,028
Russia	15,876,586	20,976,182	10,607,083	7,629,883	7,644,629	5,036,614
Sweden and Norway	8,392,723	16,113,391	3,928,682	5,416,972	2,486,256	3,868,822
Denmark and Iceland	4,675,090	2,998,072	1,984,767	2,597,807	1,647,967	2,265,959
Germany	21,604,890	27,907,626	29,623,776	31,781,370	18,591,545	18,787,635
Holland	21,959,384	25,115,586	15,452,752	15,872,330	9,353,151	9,506,246
Belgium	10,725,739	16,178,345	11,887,442	14,755,012	5,106,479	8,327,941
France	38,459,096	38,636,022	26,558,333	29,409,335	14,988,857	17,567,512
Portugal	3,025,228	3,463,500	2,427,118	2,374,590	1,899,039	1,962,184
Azores and Madeira	215,332	150,069	137,793	182,529	111,318	134,865
Spain	8,398,776	11,623,663	3,758,717	4,876,243	2,940,188	3,785,034
Italy	3,233,594	3,392,446	6,039,778	8,194,823	4,983,676	7,121,948
Austria	1,685,602	2,337,896	1,047,045	1,545,260	799,085	967,529
Greece	1,861,196	1,905,635	1,081,437	1,442,454	944,336	1,288,876
Turkey in Europe	971,313	1,899,262	4,521,406	3,924,045	4,157,925	3,419,482
Rumania	1,373,002	3,516,442	1,097,432	1,402,441	997,078	1,342,619
Total, Europe	143,416,204	176,646,435	122,661,512	134,129,555	78,696,669	87,658,787
<i>America.</i>						
British North America	10,445,694	12,283,727	6,118,862	10,109,596	5,445,130	9,155,927
United States	91,818,295	99,238,960	25,518,789	36,732,506	20,321,990	27,372,968
British West Indies and Honduras	7,302,921	5,141,782	3,101,161	3,957,419	2,810,326	3,576,114
Foreign West Indies	3,150,782	1,287,657	3,232,892	3,956,904	2,517,509	3,000,748
Mexico and Central America	1,968,699	1,846,169	1,513,886	2,480,602	1,415,751	2,391,512
Brazil	4,749,816	6,138,521	5,986,008	7,015,333	5,685,054	6,648,470
Falkland Islands (British)	63,420	79,772	16,631	28,536	12,035	21,954
Other parts of America	10,362,965	11,817,669	7,191,162	11,562,793	6,721,285	11,073,659
Total, America	129,862,592	137,834,257	52,679,291	75,843,689	44,929,080	63,243,534
<i>Africa.</i>						
Egypt	8,890,052	10,008,659	2,208,105	3,501,492	2,143,681	3,367,300
Barbary	1,017,349	1,727,434	603,303	855,232	528,002	780,775
Canary Islands	340,683	156,026	229,932	204,716	173,545	194,423
British West Coast	588,760	729,615	846,355	926,014	744,160	855,486
Foreign	1,473,516	147,744	1,056,864	1,901,597	836,424	391,580
Cape of Good Hope (British)	4,610,379	5,895,909	6,369,876	5,000,251	5,853,037	4,556,784
Mauritius (British)	641,836	414,953	366,541	580,558	341,257	506,423
All other parts of Africa	175,172	180,000	628,291	350,850	598,733	278,832
Total, Africa	17,737,747	19,335,424	12,309,267	13,422,343	11,218,839	10,931,303

IMPORTS AND EXPORTS ACCORDING TO COUNTRIES (*continued*).

Foreign Countries and British Possessions.	1879. Imports.	1883. Imports.	1879. Exports of British, Foreign, and Colonial Pro- duce.	1883. Exports of British, Foreign, and Colonial Pro- duce.	1879. Exports of British Pro- duce only.	1883. Exports of British Pro- duce only.
<i>Asia.</i>	£	£	£	£	£	£
Turkey in Asia . . .	2,502,148	3,566,037	3,184,188	3,485,960	3,050,315	3,270,293
British India . . .	24,698,213	38,882,829	22,714,682	33,382,786	21,374,404	31,874,084
Straits Settlements (British)	2,565,361	4,643,016	2,182,637	2,793,106	2,029,018	2,624,001
Ceylon (British) . . .	3,568,965	2,172,736	827,119	759,079	780,918	725,047
Dutch East Indies . . .	1,784,140	4,091,013	1,657,451	2,304,870	1,643,416	2,276,088
Spanish East Indies . . .	1,480,821	1,670,076	612,883	1,248,613	599,024	1,216,904
China . . .	11,049,300	10,137,739	5,140,074	4,528,202	4,649,978	4,224,854
Hong Kong (British) . . .	1,327,085	1,171,986	3,128,227	3,047,470	2,947,984	2,891,477
Japan . . .	450,945	663,092	2,997,522	2,601,272	2,638,002	2,276,573
All other parts of Asia . . .	349,803	573,885	557,619	326,765	535,837	318,972
Total, Asia . . .	49,776,781	67,572,409	43,002,402	54,478,123	40,248,896	51,698,293
Australia (British) . . .	21,942,319	25,936,201	17,959,705	26,839,490	16,270,736	24,216,452
Islands of the Pacific . . .	166,738	121,639	171,087	149,708	167,388	141,377
North Whale Fisheries . . .	89,494	111,949	—	79	150	—
British Possessions . . .	78,942,638	—	66,508,973	—	61,002,111	—
Foreign Countries . . .	284,049,237	—	182,274,391	—	130,529,647	—
Grand Total . . .	362,991,875	401,388,525	248,783,364	277,873,710	191,531,758	213,531,927

VI.—TRADE OF THE PRINCIPAL PORTS, 1883.

	Mercantile Marine.			Sea Fishery Boats.	Vessels entered and cleared from and to Foreign Countries and British Possessions.				Vessels entered and cleared in the Coasting Trade.				Total Imports of Foreign and Colonial Merchandise.	Export of British Produce to Foreign Countries and Colonies.	Customs Duty received.			
	Sailing Vessels.	Steam Vessels.	Tonnage.		No.	Entered.	Cleared.	Vessels.	Tons.	Entered.	Cleared.	Vessels.				Tons.	Entered.	Cleared.
Barrow-in-Furness	95	56	71,725	—	82	46,017	58	37,375	529	44,449	731	67,048	532,207	878,540	£	4,181		
Beaumaris	169	6	9,734	—	30	8,448	23	2,202	557	26,167	1,527	93,884	37,090	10,978	—	—		
Bristol	191	63	60,924	1	451	168,511	119	39,290	4,091	190,095	2,060	92,758	8,482,091	1,106,881	841,802	15,806		
Cardiff	72	241	159,977	10	1,094	277,692	2,412	1,173,105	2,030	157,801	4,242	311,744	2,193,320	4,847,467	23,002	3,635		
Cowes	256	44	15,337	9	51	4,402	97	6,077	2,396	100,502	1,492	39,964	16,639	23,002	16,639	15,806		
Dover	51	7	4,534	77	112	19,181	18	1,668	492	50,752	248	14,551	6,206,255	1,797,985	28,483	28,483		
Folkestone	11	—	1,353	91	45	5,954	15	1,156	364	37,362	72	4,247	9,514,374	1,515,839	13,961	13,961		
Gloucester	246	13	12,528	1	280	110,836	104	37,469	1,371	56,844	3,507	168,379	2,348,180	36,682	10,343	10,343		
Goole	257	30	24,314	2	184	50,953	126	31,717	689	46,431	741	51,733	4,608,904	4,313,546	22,124	22,124		
Grimby	678	43	55,323	645	469	107,904	336	100,491	1,251	61,224	1,193	60,631	4,099,663	8,047,391	107,690	107,690		
Hartlepool	34	224	202,152	106	847	190,331	785	169,887	423	64,837	1,514	164,061	2,277,942	1,323,087	8,762	8,762		
Harwich	134	17	16,155	59	42	7,513	4	380	514	28,329	587	27,773	9,785,499	3,330,521	36,605	36,605		
Hull	610	229	202,617	535	728	275,090	515	154,313	724	51,472	750	54,971	21,624,724	18,231,650	104,510	104,510		
Liverpool	1,760	801	1,746,348	225	1,996	1,326,123	1,740	1,211,865	3,486	265,449	2,973	271,817	114,625,869	91,748,208	2,926,115	2,926,115		
London	1,583	1,212	1,202,485	176	3,999	1,658,622	1,768	814,383	30,938	1,475,836	10,632	587,408	145,139,505	55,229,721	10,054,117	10,054,117		
Middlesbrough	19	80	32,213	35	155	28,315	269	78,582	602	71,511	574	58,170	500,429	2,417,632	23,082	23,082		
Newhaven	17	16	5,183	—	54	11,425	—	—	192	33,180	49	5,223	7,639,011	2,325,919	18,561	18,561		
Newport	72	37	26,284	6	666	131,459	952	254,484	1,346	119,569	5,511	358,576	956,934	2,062,007	34,184	34,184		
Plymouth	367	19	32,568	261	601	118,585	361	37,523	1,913	188,315	1,219	98,822	2,089,501	175,535	45,454	45,454		
Rochester	1,147	12	49,536	75	286	42,840	61	3,775	4,278	217,656	3,989	174,244	7,397,029	1,243,207	8,359	8,359		
Southampton	248	87	83,926	29	257	43,167	23	1,391	1,993	101,220	2,313	63,903	8,425,319	7,402,957	31,218	31,218		
Sunderland	147	262	227,181	92	533	118,491	602	139,187	897	99,608	4,068	507,766	761,296	757,813	109,859	109,859		
Swansea	183	33	68,224	84	733	143,214	1,412	276,920	1,886	173,528	3,158	254,227	1,930,706	1,600,111	8,086	8,086		
Tyne	175	360	242,171	5	1,127	260,301	2,514	625,581	3,061	451,628	3,279	454,433	8,685,895	4,821,674	896,120	896,120		
Shields N. and S.	172	318	166,378	—	186	51,440	556	115,418										
England and Wales	14,445	4,670	5,319,351	8,800	17,903	5,747,122	16,683	5,558,621	100,213	6,283,428	80,608	5,528,556	378,381,751	—	16,172,585	16,172,585		

Aberdeen	116	90	108,128	524	179	56,347	18	1,989	676	70,329	440	49,618	853,078	73,321	91,872
Alloa	12	8	2,421	—	241	38,337	275	41,074	108	8,108	38	4,257	195,733	46,367	105
Ardrrossan	98	10	15,072	168	6	1,131	42	14,050	359	31,563	1,678	84,600	79,775	125,963	42
Borrowstownness	14	1	2,045	28	494	80,021	1,125	152,061	76	5,885	278	19,393	300,811	197,384	31
Dundee	123	69	108,530	191	300	294,070	94	32,488	201	16,447	128	10,170	3,951,893	769,185	104,463
Glasgow	607	772	979,664	21	222	91,636	323	209,778	1,346	115,003	1,795	119,591	13,972,464	14,342,214	942,025
Graugemouth	34	34	12,059	1	455	102,516	390	85,933	54	4,926	47	4,077	2,120,482	457,963	493
Granton	5	25	2,604	9	119	24,789	131	26,666	28	2,230	37	2,666	244,942	123,352	102,253
Greenock	323	93	214,747	1,616	330	223,341	211	152,355	871	41,924	464	34,536	5,102,802	421,222	45,860
Inverness	99	5	8,852	2,871	120	20,080	6	614	1,096	90,823	491	37,321	148,994	6,298	3,043,837
Kirkcaldy	10	8	1,465	829	136	20,710	1,003	128,271	151	12,443	435	26,759	197,002	303,754	28,467
Leith	53	146	96,691	517	583	134,808	378	86,620	465	37,555	271	18,316	9,874,263	2,859,796	317,070
Montrose	43	8	1,849	368	63	20,622	8	818	261	31,354	186	16,358	200,230	20,087	1,268
Peterhead	43	8	1,934	1,549	142	15,502	136	13,671	455	33,563	181	12,480	86,219	419,303	1,175
Stornoway	17	1	993	837	9	911	21	1,711	139	8,709	37	2,028	4,330	72,591	5
Troon	9	2	150	84	27	8,076	114	40,533	536	49,254	1,665	150,456	46,199	67,023	9,922
Scotland	2,118	1,317	1,645,257	15,163	3,782	1,089,534	4,725	1,043,836	11,398	822,065	12,137	873,288	37,854,623	—	1,694,857
Belfast	316	45	82,776	427	174	87,739	14	11,703	3,510	325,714	1,627	133,778	2,171,377	777,787	615,850
Cork	216	57	40,571	792	132	61,198	4	918	1,591	162,838	991	98,364	1,439,111	8,263	128,131
Dublin	410	80	61,006	613	247	139,407	37	16,407	2,607	275,399	696	56,394	3,258,424	77,827	896,511
Limerick	29	5	3,653	391	71	44,942	9	2,043	323	42,999	83	9,155	1,136,404	18,462	101,172
Londonderry	30	7	10,675	648	47	27,641	2	1,353	673	70,482	236	20,264	543,040	1,812	73,549
Waterford	50	22	9,909	—	53	23,967	4	189	712	74,086	387	39,041	882,600	10,973	27,833
Ireland	1,343	254	231,793	8,575	888	464,063	74	33,160	12,853	1,237,265	5,358	460,076	10,633,324	—	1,975,529
United Kingdom	17,906	6,241	7,196,401	32,618	22,573	7,300,719	21,482	6,635,617	124,464	8,342,758	98,103	6,861,920	426,891,579	239,799,473	19,842,971
Isle of Man	183	15	11,905	444	30	4,618	—	—	895	50,612	599	29,658	21,881	—	—
Channel Islands	326	4	33,910	342	729	33,645	296	14,996	—	—	—	—	—	—	—
British Possessions	30,755	8,206	9,131,418	—	—	—	—	—	—	—	—	—	—	—	—

VII.—STATISTICAL VIEW OF THE BRITISH EMPIRE.

	Area.	Pop. 1881.	Imports.	Exports.	Revenue.	Debt.
	Sq. Miles.		£	£	£	£
<i>Europe.</i>						
United Kingdom	121,592	35,241,000	387,147,400	277,368,300	81,265,000	774,044,000
Isle of Man	227	53,000	—	—	52,400	149,000
Channel Islands	73	87,000	813,200	737,800	100,000	250,000
Heligoland	0·2	2,000	—	15,249,440	9,800	3,500
Malta	143	150,000	15,935,900	—	189,500	312,880
Gibraltar	2	18,000	739,700	36,000	43,200	—
Total, Europe	122,037	35,551,000	404,636,200	293,391,540	81,659,900	774,757,380
<i>Asia.</i>						
Cyprus	3,708	185,000	100,000	55,000	152,000	—
British India	908,971	199,452,000	44,857,650	64,919,100	66,749,000	146,684,000
Feudatory States	655,000	57,430,000	—	—	—	—
Ceylon	24,702	2,630,000	4,980,920	4,438,140	1,642,610	662,600
Straits Settlements	1,445	600,000	13,420,500	12,739,100	366,500	105,000
Nicobar Islands	725	5,000	—	—	—	—
Andaman	2,550	13,500	—	—	—	—
Laccadive Islands	744	6,800	—	—	—	—
Aden	8	30,000	—	—	—	—
Perim	5	10	—	—	—	—
Kamaran (Red Sea)	64	500	—	—	—	—
Kuria Muria Islands	21	—	—	—	—	—
Labuan	30	5,000	157,520	156,600	7,500	—
North-eastern Borneo	19,000	250,000	—	—	—	—
Keeling Island	8	400	—	—	—	—
Hong Kong	32	270,000	—	—	185,000	—
Total, Asia	1,617,013	260,878,210	63,516,570	82,307,740	69,102,610	147,412,600
<i>Africa.</i>						
Gambia	21	15,000	165,000	204,300	25,700	—
Sierra Leone	468	60,000	350,000	350,000	160,000	—
Gold Coast and Lagos	17,000	580,000	877,800	970,790	156,000	300
St. Helena	47	6,240	87,700	40,000	14,200	12,250
Ascension	34	300	—	—	—	—
Tristan da Cunha	45	80	—	—	—	—
Cape Colony and Dependencies	241,300	1,250,000	6,588,730	532,840	3,232,000	6,986,400
Damara and Great Namaqua Land	200,000	137,000	—	—	—	—
Natal	18,750	416,000	1,712,600	694,200	369,400	632,600
Mauritius and dependencies	1,090	377,000	229,350	3,777,400	789,600	700,000
New Amsterdam	26	—	—	—	—	—
St. Paul	3	—	—	—	—	—
Sokotra	1,380	4,100	—	—	—	—
Mosha (G. of Tajura)	0·4	—	—	—	—	—
Total, Africa	480,164	2,845,720	12,018,180	9,569,530	4,906,900	7,338,000
<i>Australia.</i>						
Queensland	669,520	214,000	3,436,100	3,190,420	1,559,100	8,935,350
New South Wales	325,000	752,000	14,768,900	12,995,900	4,983,850	11,688,120
Victoria	88,198	862,000	16,161,900	14,925,700	4,504,000	17,022,100
South Australia	903,690	280,000	5,719,600	5,355,000	1,593,000	5,329,600
West Australia	1,058,000	30,000	379,100	428,500	163,340	184,560
Tasmania	26,215	116,000	1,324,800	1,315,700	381,900	1,747,400
New Zealand	105,342	544,000	8,755,600	6,015,500	4,167,900	22,608,310
Norfolk Island	17	500	—	—	—	—
Chatham Island	628	200	—	—	—	—
Auckland Islands	197	—	—	—	—	—
Lord Howe's Island	3	40	—	—	—	—
Fiji Islands	8,034	124,000	136,600	146,850	61,000	85,000
Rotumah, &c.	80	3,000	—	—	—	—
South-east New Guinea	50,000	—	—	—	—	—
Total, Australia	3,154,924	2,925,740	50,682,600	44,343,570	17,413,090	67,600,440

STATISTICAL VIEW OF THE BRITISH EMPIRE (*continued*).

	Area.	Pop. 1881.	Imports.	Exports.	Revenue.	Debt.
	Sq. Miles.		£	£	£	£
<i>America.</i>						
Dominion of Canada . . .	3,470,000	4,325,000	17,075,900	14,894,000	4,785,000	34,991,500
Newfoundland	40,200	161,400	1,430,980	1,173,100	212,300	280,300
Bermuda	41	14,000	243,700	65,460	26,900	12,000
Honduras	7,560	27,000	191,490	131,000	40,400	5,000
West Indies	13,320	1,320,000	5,625,620	5,382,980	1,409,000	1,134,000
British Guiana	85,425	252,000	2,150,710	2,507,600	409,260	303,660
Falkland Islands (with Southern Georgia) . . .	6,500	1,500	36,790	51,100	11,600	—
Total, America	3,623,048	6,100,900	26,755,190	24,205,240	6,894,460	36,726,960
Grand Total	8,997,186	308,301,570	557,608,740	453,817,820	179,976,960	1,033,835,380

The statements in this table are taken from the latest available returns, and in many instances they are merely approximate.

Bullion is included in nearly all instances, and so is the value of merchandise sent in transit. This accounts for the high figures given for Malta.



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